

FILE

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke Energy Ohio, Inc. for an Increase in Gas Rates.)	Case No. 07-589-GA-AIR
)	
In the Matter of the Application of Duke Energy Ohio, Inc. for approval of an Alternative Rate Plan for its Gas Distribution Service)	Case No. 07-590-GA-ALT
)	
In the Matter of the Application of Duke Energy Ohio, Inc. for Approval to Change Accounting Methods)	Case No. 07-591-GA-AAM
)	

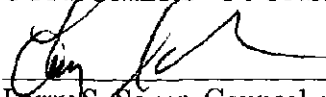
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**NOTICE OF FILING DEPOSITION BY
THE OFFICE OF THE OHIO CONSUMERS' COUNSEL**

Pursuant to Ohio Adm. Code 4901-1-21, The Office of the Ohio Consumers' Counsel gives notice of filing the deposition of Matthew Smith who adopted David Mohler's Testimony, which was taken on February 19, 2008.

Respectfully submitted,

JANINE L. MIGDEN-OSTRANDER
CONSUMERS' COUNSEL

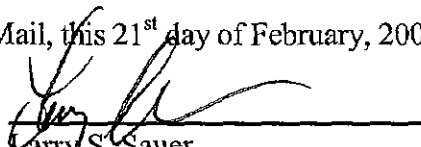

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CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Ohio Consumers' Counsel's Notice of Filing deposition*, was served via Electronic Mail, this 21st day of February, 2008.


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THE PUBLIC UTILITIES COMMISSION OF OHIO

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Duke Energy Ohio, Inc., for an) Case No. 07-589-GA-AIR
Increase in Gas Rates.)

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Approval of an Alternative Rate Plan)
for its Gas Distribution Service.)

In the Matter of the Application of)
Duke Energy Ohio, Inc., for Approval) Case No. 07-591-GA-AAM
to Change Accounting Methods.)
_____)

TELEPHONIC DEPOSITION

OF

MATTHEW W. SMITH

Taken by Ohio Consumers' Counsel
Charlotte, North Carolina
February 19, 2008

Reported by: Colleen J. Cain, CSR

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A P P E A R A N C E S

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A P P E A R A N C E S

(Continued)

(APPEARING VIA TELEPHONIC CONFERENCE CALL:)

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GREG SCHECK, ESQUIRE (Present for portion)

The Public Utilities Commission of Ohio

Phone: 614/644-7642

C O N T E N T S

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PAGE

EXAMINATION BY MR. SERIO..... 5

E X H I B I T S

EXHIBIT DESCRIPTION PAGE

Smith 1 Utility of the Future, Public Utilities
Commission of Ohio, Smart Metering Workshop
December 13, 2007..... 89

Smith 2 Article entitled "Designing the Utility of
The Future: Duke Energy Takes a Holistic
View of Distribution," by Steven M. Brown 103

(Black and white exhibit copies are attached to transcripts.)

Reporters Note: This transcript contains quoted material.
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1 On February 19, 2008, commencing at
2 9:10 a.m., the telephonic deposition of
3 MATTHEW W. SMITH was taken pursuant to Ohio
4 Adm. Code Rule 4901-1-21(B), on behalf of the
5 Ohio Consumers' Counsel, at the offices of
6 Duke Energy, 400 South Tryon Street,
7 Suite 1718, Charlotte, North Carolina.

8
9 P R O C E E D I N G S

10 Whereupon,

11 MATTHEW W. SMITH,
12 having been duly sworn, was examined and
13 testified as follows:

14 EXAMINATION

15 BY MR. SERIO:

16 Q. Mr. Smith, my name is Joe Serio. I'm
17 an attorney with the Ohio Consumers' Counsel.
18 I'll be taking the deposition. I'll try to
19 keep my questions as clear as I can. I'd
20 appreciate it if you'd try to do the same with
21 your answers. To the extent that we're doing
22 this telephonically, we should try to keep
23 from talking over each other. I would
24 appreciate it if you would give yes/no
25 responses. Then if you feel the need to

1 explain your answer, you can do so. You are
2 required to respond to my questions. If your
3 attorney objects, unless he directs you not to
4 answer the question, you should still respond
5 to it. If you need a break, let me know, and
6 then we'll go from there. Do you have any
7 questions?

8 A. No, that sounds good.

9 Q. Okay, great. Could you state your
10 name for the record and your title?

11 A. Matthew Smith, Director of Technology
12 Development and Utility of the Future Project.

13 Q. And who are you employed by?

14 A. Duke Energy.

15 Q. What is your relationship with Duke
16 Energy Ohio, Inc.?

17 A. Duke Energy Ohio, Inc., is one of our
18 operating companies for Duke Energy.

19 Q. Can you tell me what materials you
20 have with you today, if any?

21 A. I have a number of electronic
22 documents, the two that were just sent over by
23 Mr. Sauer, and then also the testimony of
24 David Mohler, which was previously filed.

25 Q. Let's clarify what you said. The

1 direct testimony of David Mohler was docketed
2 in Case 07-589-GA-AIR; is that correct?

3 A. Yes, I believe so.

4 Q. And that's a 14-page document?

5 A. Yes, sir.

6 Q. And you are adopting Mr. Mohler's
7 testimony in this proceeding, correct?

8 A. Yes.

9 Q. The other two documents that you
10 referenced that you got electronically, one is
11 the Utility of the Future presentation that
12 Duke made to the Public Utilities Commission
13 of Ohio, Smart Metering Workshop, on
14 December 13, 2007; is that correct?

15 A. Yes.

16 Q. And the other is an article entitled
17 "Designing the Utility of the Future: Duke
18 Energy Takes a Holistic View of Distribution,"
19 by Steven M. Brown, editor in chief?

20 A. Yes.

21 Q. We'll be marking those and discussing
22 them later. Can you briefly go through your
23 education for me?

24 A. Yes. I have a Bachelor of Arts in
25 Business Administration from Weber State

1 University, and I have a combined Juris
2 Doctorate-Master of Business Administration
3 with an emphasis in Finance from the
4 University of Kentucky.

5 Q. So you are an attorney, sir?

6 A. Yes, sir.

7 Q. Are you appearing as an attorney in
8 this matter?

9 A. No, sir.

10 Q. So your testimony is strictly limited
11 to your expertise on Utility of the Future?

12 A. Yes.

13 Q. Have you been deposed before?

14 A. No, sir.

15 Q. Could you briefly give me your work
16 history?

17 A. Yes. I started with Synergy Corp in
18 2001 in a policy role for our energy merchant
19 business unit doing transmission policy and
20 RTO development. I then transitioned -- after
21 a year-and-a-half, transitioned to our on-site
22 power plant development group, Synergy
23 Solutions. I worked in that group for about a
24 year-and-a-half doing policy and PowerPoint
25 development. I then entered our corporate

1 development group at Synergy doing general
2 strategic and mergers and acquisition work.
3 Upon the acquisition by Duke Energy, I
4 continued in a strategic planning role until
5 taking this role as leading our Utility of the
6 Future effort.

7 Q. In your time initially doing the
8 transmission and RTO work, that was entirely
9 work with the electric side of the business,
10 correct?

11 A. Yes.

12 Q. Would Synergy Solutions power plant
13 development, that also was limited just to the
14 electric side of the business?

15 A. No, it was combined heat and power.
16 So steam, power, air, any industrial facility
17 management to do with utilities.

18 Q. Did that include natural gas
19 functions?

20 A. Yes.

21 Q. Can you explain how the natural gas
22 functions were part of your power plant
23 management duties?

24 A. Generally, in delivery and receipt of
25 gas for power or steam generation.

1 Q. So it was using natural gas to make
2 electricity?

3 A. Or steam, yes.

4 Q. So it was not the natural gas side of
5 the business to the extent that natural gas
6 was used as the burner tip fuel?

7 A. Correct, not local delivery.

8 Q. And that, again, had nothing to do
9 with natural gas directly being delivered to
10 residential customers?

11 A. Correct.

12 Q. Then finally, your strategic mergers
13 and acquisition role, was that also, again,
14 focusing mainly on the electrical side of the
15 business?

16 A. No, that was on both gas and
17 electric. Any company-wide effort that dealt
18 with businesses that we are engaged in was in
19 that role.

20 Q. Mr. Mohler initially filed his
21 testimony -- do you report to Mr. Mohler?

22 A. Yes, I do.

23 Q. Is that a direct reporting situation?

24 A. Yes.

25 Q. Can you tell me why you came to take

1 the role of adopting Mr. Mohler's testimony?

2 A. Mr. Mohler has a conflict for the, I
3 guess, the trial next week or providing
4 testimony next week, and he asked me to fill
5 in.

6 Q. Were you involved in the development
7 of Mr. Mohler's testimony?

8 A. Yes.

9 Q. I'm sorry?

10 A. Yes.

11 Q. What was your role in the development
12 of his testimony?

13 A. Providing information about the
14 project and helping find details about
15 operations.

16 Q. Did you do any of the underlying
17 research that was used in the development of
18 Mr. Mohler's testimony?

19 A. Yes.

20 Q. What specifically did you do?

21 A. I did work on the cost benefit
22 analysis.

23 Q. When you reference the cost benefit
24 analysis, that's not anything that was
25 attached to Mr. Mohler's testimony; is that

1 correct?

2 A. That's correct.

3 Q. And as far as you know, that has not
4 been provided on the record as part of the
5 company's filing in this case, has it?

6 A. I don't know that.

7 Q. Let's turn to the Utility of the
8 Future discussion. On page 2 of the direct
9 testimony, starting on line 9, is that the
10 point where you're really adopting, from this
11 point forward, rather than the first
12 page-and-a-half, which is more of Mr. Mohler's
13 background and education; is that correct?

14 A. Yes, that's correct.

15 Q. Page 2, line 12, you talk about the
16 project transforming the transmission and
17 distribution system into an integrated,
18 digital network. Do you see that?

19 A. I'm sorry, line 12?

20 Q. Yes. Well, the answer begins on line
21 10 through 12 there.

22 A. Yes.

23 Q. And then you talk about a number of
24 goals: operating efficiencies, enhanced
25 customer and utility information and

1 communications, innovative services, and other
2 benefits. Do you see those?

3 A. No, I'm having trouble finding that
4 exact language. I think I'm in the right
5 area.

6 Q. Line 12 and 13.

7 A. Yes, I see it.

8 Q. I want to talk about these one at a
9 time, if we could. The first one, what
10 specific operating efficiencies will Utility
11 of the Future produce on the gas side of
12 Duke's business?

13 A. On the gas side, we'll see reduced
14 meter reading costs. We'll have reduced costs
15 on testing meters. We'll have reduced truck
16 rolls for, again, special meter reads -- I
17 guess all meter reads probably is encapsulated
18 in the first answer. Those are the big
19 operating benefits.

20 Q. Can you give me an idea of how much
21 in the way of reduced meter reading costs you
22 anticipate?

23 A. I have that detail. I don't know if
24 I have it in front of me. One nuance I will
25 bring out, we do a combined electric and gas

1 meter read today, and we don't break out the
2 cost separately for each one. And I believe
3 the cost to read the meters at a premise, if
4 there's gas and electric is -- again, I don't
5 have the detail in front of me -- I want to
6 say less than a dollar. So however that is
7 split between the two meters.

8 MR. FINNIGAN: This is John Finnigan.
9 I'm not interposing an objection at this time,
10 but I just want to make a comment that, Joe,
11 you're starting to get into some information
12 that we provided to you on a confidential
13 basis. I'm not concerned at this point, but
14 if you keep going down this path, and this is
15 to advise the court reporter that some of the
16 questions and answers may need to be kept
17 under seal because we're getting into
18 confidential information --

19 (There was a brief interruption in
20 the conference call.)

21 UNIDENTIFIED SPEAKER: Joining right
22 now I have Dan Johnson, Greg Scheck, and Tom
23 Lindgren will be joining shortly, and Bill
24 Wright.

25 MR. FINNIGAN: This is John Finnigan.

1 We also have Joe Serio and Larry Sauer. Then
2 in Charlotte we have Colleen Cain and Matthew
3 Smith, the deponent. We're just getting
4 started.

5 (There was a discussion held off the
6 record.)

7 MR. SERIO: John, in response to your
8 statement, everything I'm asking is purely
9 based on the testimony in front of me. In
10 fact, I do not have the other document that
11 you referenced in the room with me right now.
12 I'm simply asking questions with regard to
13 information listed in the testimony alone.

14 MR. FINNIGAN: That's fine, Joe.
15 Thank you.

16 BY MR. SERIO:

17 Q. Mr. Smith, I was asking about reduced
18 meter reading costs. And I believe you
19 indicated that you think the current combined
20 cost to read a residential meter is less than
21 a dollar; is that correct?

22 A. Yes, sir.

23 Q. How much will be saved from that
24 estimated dollar as a result of the Utility of
25 the Future?

1 A. Nearly the entire dollar. There will
2 be a small ongoing communication fee, but
3 90 percent of the dollar.

4 Q. Can you explain what that
5 communication fee would be?

6 A. The communication fee would be an
7 ongoing cost basically for air time, to
8 transmit the data from the device from the
9 meter to a collection point and then back over
10 the airwaves to our head-in system.

11 Q. You also mentioned a reduced meter
12 testing cost. Do you know what the current
13 meter testing cost is?

14 A. No.

15 Q. Do you know how much you anticipate
16 being able to save as a result of the Utility
17 of the Future initiatives?

18 A. I'm sorry, in general or for that
19 cost?

20 Q. That specific cost, the meter testing
21 cost.

22 A. It will be a variable amount,
23 depending on the information that comes back
24 from the meter. And the process change that
25 will occur, instead of having to test meters

1 randomly, we'll have an indication of when a
2 meter may be faulty or need to be tested.
3 Therefore it will reduce random tests to more
4 targeted testing.

5 Q. Again, this would be for the natural
6 gas side of the business, correct?

7 A. Yes.

8 Q. And I believe the third one you
9 mentioned was truck rolls for meter reads. Do
10 you know how much those costs are currently?

11 MR. FINNIGAN: I'm going to object.
12 Joe, I'm not sure what your question is when
13 you say, do you know what those costs are
14 currently. It's unclear to me whether you're
15 asking him, do you know off the top of your
16 head or do you have any data that you have
17 assembled that you could go and pull and
18 reference those costs. Could you clarify what
19 exactly it is you're asking him? Do you want
20 him to go out and get the data now, or do you
21 want him to just answer off the top of his
22 head?

23 BY MR. SERIO:

24 Q. Mr. Smith, do you recall giving me
25 those three components, the operating

1 efficiencies?

2 A. Yes.

3 Q. And truck rolls for meter reads was
4 one of them, right?

5 A. Yes.

6 Q. Do you know what the current cost is
7 for the truck rolls for meter reads?

8 MR. FINNIGAN: Objection as to form.
9 You mean off the top of his head or does he
10 have the data anywhere?

11 MR. SERIO:

12 Q. Mr. Smith, can you answer the
13 question as posed?

14 A. No.

15 Q. So you don't know currently what the
16 specific costs for truck rolls are for meter
17 reads; is that correct?

18 MR. FINNIGAN: Same objection. The
19 question isn't clear whether you're asking him
20 off the top of his head or based on whether he
21 has any data that would indicate that.

22 BY MR. SERIO:

23 Q. Mr. Smith, do you have an answer to
24 the question?

25 A. No.

1 Q. Do you have the ability to get the
2 data to determine how much truck rolls for
3 meter reads costs are?

4 A. Yes.

5 Q. How long would it take you to get
6 that data?

7 A. It would require a search of probably
8 an electronic file to make sure I get the
9 right information. Within a day or an hour.
10 I mean, it can be done fairly quickly. I
11 don't have the information at my fingertips.

12 Q. That's information that you could
13 provide at a later date?

14 A. Yes.

15 Q. Okay, if you would do that.

16 MR. FINNIGAN: Objection. Discovery
17 has ended. We're not going to respond to any
18 more data requests, so we will not be doing
19 that.

20 BY MR. SERIO:

21 Q. Mr. Smith, how do you know that
22 there's going to be any savings from the truck
23 rolls if you don't know off the top of your
24 head what the truck rolls costs are?

25 A. With the proposed system in place, we

1 would no longer have to roll a truck to take
2 the meter read.

3 Q. Isn't that also included in part of
4 the reduced meter reading costs?

5 A. Yes. It's a different category of
6 meter reading costs. There's ongoing meter
7 read that occurs on a monthly basis to prepare
8 a bill. And there are special meter reads
9 which occur to prepare either a closing bill
10 or to investigate a complaint or issue from a
11 customer. Those are the ones that I
12 referenced require a special truck roll to
13 read.

14 Q. So when you talk about truck rolls,
15 you're limiting that to situations where
16 you're opening or closing an account or if
17 there's been a complaint; is that correct?

18 A. That's correct. An off-cycle read is
19 how we reference it.

20 Q. To the best of your knowledge, that
21 cost is different than the dollar cost for
22 your regular meter reads?

23 A. Yes.

24 Q. When we talk about meter reads, the
25 same basic costs are included in a regular

1 meter read as in these off-cycle reads; is
2 that correct?

3 A. I'm not sure I understand your
4 question.

5 Q. Most categories of meter reads
6 require someone to go to the premises and read
7 the meter, correct?

8 A. Correct.

9 Q. There's nothing extra about the
10 regular meter reads that is different in how
11 an off-cycle meter read is done, correct?

12 A. Correct.

13 Q. To the extent that there might be a
14 savings with the truck rolls for your
15 off-cycle reads, would there still be an
16 ongoing communications fee with those also?

17 A. Yes.

18 Q. Now, the benefit that you estimated,
19 I believe you estimated approximately
20 90 percent?

21 A. Correct.

22 Q. How did you determine that
23 90 percent?

24 A. Based on the current estimate for the
25 communication charge and the frequency of the

1 reads.

2 Q. What is the current communication
3 charge that you're estimating?

4 A. I don't have that at my fingertips.

5 Q. Can you quantify an estimate? Is it
6 more than a dime?

7 A. No.

8 Q. So we're talking about a charge of
9 less than ten cents. That would be less than
10 ten cents a month?

11 A. Ten cents per read.

12 Q. To the extent that we're talking
13 about natural gas, can you envision that you
14 would require more than one read per month for
15 a customer?

16 A. Potentially, yes.

17 Q. We're talking about residential
18 customers now, correct?

19 A. Yes, sir.

20 Q. Can you tell me under what
21 circumstances a residential customer might
22 need more than one read a month?

23 A. Under a bill-check scenario where we
24 would provide the customer a more frequent
25 look at their consumption, so they can manage

1 their consumption and their' bill better.

2 Q. So if a customer called you and asked
3 how much they're using, you could provide them
4 with that information; is that what you're
5 saying?

6 A. Yes, that's correct.

7 Q. Versus the customer simply going to
8 the meter and reading it themselves?

9 A. Correct.

10 Q. Because the customer would get the
11 same information if they simply read it
12 themselves, correct?

13 A. They would get the same meter read,
14 yes.

15 Q. Is there anything that your
16 communication could tell them about their
17 consumption that reading the meter themselves
18 would not?

19 A. Yes, an estimated bill amount.

20 Q. And that would be because you would
21 multiply the usage times the current rate for
22 natural gas at that point in time, correct?

23 A. Yes, that's correct.

24 Q. And if the customer is a GCR
25 customer, it would simply be the usage times

1 the GCR amount?

2 A. Yes, I believe so.

3 Q. If they're a Choice customer, it
4 would be usage times the contracted rate that
5 they have as a Choice customer, correct?

6 A. Yes, I believe so.

7 Q. And both of those pieces of
8 information would be readily available to the
9 customer from the company's communications
10 call-in center, correct?

11 A. Yes.

12 Q. And to the best of your knowledge,
13 they would also be available from the Public
14 Utilities Commission call center; is that
15 correct?

16 A. I don't know that.

17 Q. Do you know if that information would
18 also be available from the Consumers' Counsel
19 call center?

20 A. I don't know that either.

21 Q. Who would you be paying the
22 communications fee to?

23 A. That would depend on the
24 communication provider, which could either be
25 our own network, which in case it would be an

1 internal charge. If it were an external
2 carrier, like a public carrier, Verizon or
3 at&t or a land line carrier, it would be that
4 third-party provider.

5 Q. Is your less-than-10-cent estimate
6 based on using your internal company network
7 rather than an outside provider?

8 A. It's a combination.

9 Q. Has the company done any competitive
10 bidding to determine what the lowest cost
11 would be for the communication fee?

12 A. Not at this point.

13 Q. Does the company plan on doing any
14 competitive bidding?

15 A. Yes, likely.

16 Q. You say likely. Is that a decision
17 that has been made yet?

18 A. No.

19 Q. But you anticipate that there would
20 be some type of competitive bidding?

21 A. It would be dependent on the
22 technology, but yes. If available, we would.

23 Q. You're saying, if the technology was
24 available, then you would bid. Can you
25 explain what you mean by, if the technology

1 was available?

2 A. Yes. If we build our own network and
3 utilize technology that, for example, uses a
4 certain frequency of the airwaves, there may
5 not be competitors that have that same air
6 space. So if it's wireless spectrum that is
7 owned by the company, there's not a
8 competitive bidding process that would result
9 in a lower price.

10 If it's a public carrier, again, like
11 Verizon or at&t, then a competitive bidding
12 process would be available.

13 Q. To the extent that you used your own
14 internal network because of the limitations
15 that you just described, how would the pricing
16 be developed?

17 A. I don't know that exactly, but some
18 form of cost base pricing on the
19 infrastructure.

20 Q. The second item that you talk about
21 on lines 12 and 13 of the testimony are
22 enhanced customer and utility information.
23 Can you explain to me what that means?

24 A. Yes. As I had mentioned before, the
25 ability to monitor usage throughout the

1 billing period instead of at fixed points that
2 constitute the billing period give both us and
3 our customer more information about usage and
4 consumption versus having a fixed point in
5 time for that information. The utility would
6 also gain remote information about the meter,
7 both on a more frequent basis and potentially
8 in more depth that is available today without
9 a site visit.

10 Q. What do you mean by more in depth for
11 a natural gas customer?

12 A. For a natural gas customer, the
13 amount of information wouldn't change. What
14 would change is the utility information about
15 the meter and mostly the metrology. If it's
16 slow, if it has any issues on how it's
17 recording the gas consumption, we would be
18 alerted to that without a site visit through
19 the communication system.

20 Q. When we talk about this customer and
21 utility information, if we were talking about
22 the electric side of the business, that
23 information would be significantly greater;
24 would it not?

25 A. Yes.

1 Q. For example, you're talking about
2 daily or even hourly information, because
3 electricity is priced on a more time-specific
4 basis, correct?

5 A. I'm not sure how to answer that. No,
6 not today, we don't price our electricity in
7 that fashion.

8 Q. Would that be something the company
9 would like to do if they had that information
10 available?

11 A. Yes, we may.

12 Q. Do you know if the company was
13 planning, on the natural gas side, to do the
14 same kind of specific date or time of day
15 pricing with natural gas?

16 A. Not to my knowledge.

17 Q. Would that be because natural gas is,
18 from your suppliers, not priced in that
19 manner?

20 A. I'm not sure there's a relationship
21 between the two, but I don't know that for a
22 fact.

23 Q. When you say between the two, what
24 were you referring to?

25 A. The way we price to our end-use

1 customer and the way we're charged by our
2 suppliers.

3 Q. So even if your supplier was charging
4 you, for example, on a monthly basis for
5 natural gas, the company might determine that
6 it wanted to price customers on a daily or
7 hourly basis; is that what you're saying, that
8 there's not necessarily a correlation?

9 A. I don't know that, is what I'm
10 saying, yes.

11 Q. So you don't know if that's been
12 discussed internally as an option that the gas
13 utility would like to have?

14 A. That's correct.

15 Q. To the extent that discussions like
16 that were occurring, would you not be involved
17 in those discussions inasmuch as you're
18 Director of Technology?

19 A. I am not involved in the pricing
20 discussions, on pricing the commodity.

21 Q. But there would be technological
22 requirements in order to do natural gas
23 pricing on something other than a monthly
24 basis, correct?

25 A. Yes, that's correct.

1 Q. To the extent that that discussion
2 was occurring, you would be involved in it,
3 correct?

4 A. Yes, that's correct.

5 Q. So even though you wouldn't
6 necessarily make the decision to do it, if
7 there was a discussion about whether to do it,
8 you would be involved in those discussions?

9 A. I would be involved on the technical
10 requirements to be able to do that.

11 Q. And you indicated, to the best of
12 your knowledge, that there's been no
13 discussions about doing that on the natural
14 gas side, correct?

15 A. Correct.

16 Q. Can you quantify for me the benefit
17 of this additional information on the gas
18 side?

19 A. I don't have that at my fingertips,
20 no.

21 Q. Is there a specific number that is
22 involved in your estimate on your cost benefit
23 analysis?

24 A. No, not at this time.

25 Q. Can you give me an estimate of what

1 you think that benefit might be? Is it less
2 than a dime, less than a quarter, less than
3 50 cents?

4 A. I don't have an estimate. My mind is
5 very program-specific, so it would depend on
6 the amount and timeliness of the information
7 that would flow to the customer.

8 Q. So would it be fair to say that it's
9 very difficult to quantify what the benefits
10 to the customer would be from such additional
11 information?

12 A. I'm not sure if it's difficult to
13 quantify, as it just is we haven't attempted
14 to quantify it.

15 Q. So you have not attempted to quantify
16 it even in your cost benefit analysis?

17 A. I'm sorry, to quantify the value of
18 the information?

19 Q. The benefit to the customer from this
20 additional information.

21 A. Yes, that's correct.

22 Q. So to the extent that you talk about
23 there being a benefit, it's a benefit from the
24 company's side?

25 A. No, we reference it as a benefit for

1 both the customer and the company.

2 Q. Benefit can be to either the company
3 or the customer, and you just indicated that
4 you have not attempted to quantify it for the
5 customer. But you have quantified it for the
6 company, correct?

7 A. No, we have not quantified the value
8 of the information on usage to either party,
9 the company or the customer.

10 Q. So I get it straight, on line 12, the
11 second item there, enhanced customer and
12 utility information and communications, you
13 just indicated that regardless of whether it's
14 for the customer or the company, you have not
15 attempted to quantify that benefit in your
16 cost benefit analysis?

17 A. That's correct, in the cost benefit
18 analysis.

19 Q. And the reason that you have not
20 attempted to quantify that is what?

21 A. It is very program-specific. The
22 benefits that will flow will be very dependent
23 on the program that delivers the information
24 to the customer, and those have not yet been
25 developed.

1 Q. Now, I believe the next item that you
2 list there on line 13 is innovative services.
3 Can you explain to me what side of innovative
4 services you're talking about on the gas side
5 of the business?

6 A. The one example I can provide is the
7 concept referred to as monthly bill check,
8 which would provide a customer an update of
9 usage and an estimate of what that bill would
10 be based on their current usage, and allow
11 that customer to take action prior to
12 receiving the bill for the completed billing
13 period.

14 Q. When you say giving the customer the
15 opportunity to take action, other than
16 reducing usage from that point forward for the
17 rest of the billing period, is there any other
18 action the customer could take?

19 A. Yes. Potentially, I guess there's
20 the reduced usage or time shifting of -- I'm
21 sorry, I was thinking electric. No, reduced
22 usage is the main benefit.

23 Q. For the gas side?

24 A. For the gas side, yes, sir.

25 Q. And currently, if a customer went out

1 and just read their meter and called the
2 company, they could get that same information
3 from the call center by simply multiplying
4 their usage to date times the current GCR, or
5 if they're on Choice, their Choice rate,
6 correct?

7 A. I believe so.

8 Q. And they could also take the same
9 steps of simply reducing usage if they were
10 trying to do something to control their bill a
11 little bit more, correct?

12 A. Yes, I believe so.

13 Q. Would the company encourage the
14 customer to use less gas as a means of
15 controlling their bill, if that service was
16 available?

17 A. We would provide the information.
18 I'm not sure we would encourage them to use
19 more or less, not knowing their individual
20 circumstances. We would just provide the
21 information.

22 Q. Then you list a catch-all of other
23 benefits. Can you explain to me what you had
24 in mind under other benefits?

25 A. Other benefits are mostly to the

1 utility in how we operate our business in
2 using the information that we can gather on a
3 more frequent basis to make more informed
4 operating decisions.

5 Q. Have you made any attempt to quantify
6 the benefit of that additional information to
7 the company?

8 A. No, not in the cost benefit analysis.

9 Q. So you've not attempted to quantify
10 it and you have not used it in the cost
11 benefit analysis, correct?

12 A. That is correct.

13 Q. Because that was two separate points?

14 A. Yes. There has been ongoing work in
15 our gas purchasing group on how they best do
16 their purchasing, which is a quantified event.
17 We have not incorporated that work into our
18 cost benefit analysis at this point. However,
19 we believe that the increased information flow
20 from the consumption point would impact how we
21 purchase gas. We're working through the
22 process of quantifying that.

23 Q. Can you explain to me how that
24 additional information would impact how you
25 purchase gas?

1 A. Yes, it would impact the frequency of
2 when we make purchases in the long term versus
3 the spot market for natural gas.

4 Q. Do you know whether the company
5 currently analyzes the frequency of making
6 long-term purchases versus spot-term purchases
7 today in the natural gas supply department?

8 A. I believe they do.

9 Q. So they would be doing the same type
10 of activity in the future?

11 A. To make sure I understand, yes, they
12 would continue to evaluate purchases in the
13 long term versus the spot market.

14 Q. Would they be doing anything
15 different than what they do today?

16 A. They would have more granular
17 consumption information.

18 Q. They would have more information
19 available, but do you know if they would be
20 doing anything different from the type of
21 decision-making process they use today?

22 A. No, I don't know that.

23 Q. So it's possible that even with that
24 additional data, they would still look at the
25 frequency of long term versus spot purchases

1 on the same basis as they do today?

2 A. Yes, that's correct.

3 Q. Now, on page 2 of the testimony, on
4 line 15, you talk about Advanced Metering
5 Infrastructure, or AMI?

6 A. Yes.

7 Q. Can you explain to me what you mean
8 by an AMI?

9 A. Advanced Metering Infrastructure is
10 the utility infrastructure that surrounds the
11 meter and the communication system that would
12 transport information from the meter to our
13 back office or head-in system for capturing
14 and using the data. The entirety of that
15 infrastructure is referred to as AMI or
16 Advanced Metering Infrastructure.

17 Q. Can you explain to me the fundamental
18 difference between AMI and the Utility of the
19 Future?

20 A. AMI is a subset of Utility of the
21 Future. Utility of the Future looks beyond
22 the meter to include other utility devices
23 that can deliver information if connected to a
24 network.

25 Q. Again, focusing on the gas side of

1 the business, can you explain to me what the
2 Utility of the Future can do that the AMI
3 cannot?

4 A. On the gas side of the business, the
5 Utility of the Future would include collecting
6 the data from the meter and transporting it on
7 the communications system. I don't believe
8 that there's an additional function there.

9 Q. So you're saying that the information
10 that the AMI would collect is the same as the
11 information that the Utility of the Future
12 would collect?

13 A. Yes, I believe so. Although, the
14 Utility of the Future is not a separate
15 infrastructure project.

16 Q. I understand. But when you indicated
17 that AMI was a subset of Utility of the
18 Future, I'm trying to determine what the
19 Utility of the Future can do for a gas
20 customer that the AMI cannot.

21 A. Okay.

22 Q. Is there anything that the Utility of
23 the Future can do for a gas customer that the
24 AMI cannot?

25 A. No, I don't believe so.

1 Q. So for purposes of a natural gas
2 customer, an AMI provides the same type of
3 benefits that a Utility of the Future project
4 would provide?

5 A. I believe the one additional benefit
6 that is provided is a lower communication
7 cost, because the communication charge is
8 spread over more devices.

9 Q. When you say spread over more
10 devices, what do you mean by more devices?

11 A. You would include the electric meter.
12 You would include other assets on the utility
13 side of the meter like capacitors, reclosers,
14 substations, other power equipment that again
15 could provide information to the network.

16 Q. So if we're looking at the natural
17 gas customers, do you know approximately how
18 many natural gas customers Duke Energy has?

19 A. I believe the number is around a half
20 a million.

21 Q. Would you accept, subject to check,
22 that the number is approximately 456,000?

23 A. I believe that's for Duke Energy
24 Ohio.

25 Q. So with AMI, the cost would be spread

1 over the 456,000 gas meters, correct?

2 A. Yes.

3 Q. And if you had the Utility of the
4 Future for gas customers, that cost would be
5 spread over more than just the 456,000 gas
6 customers?

7 A. Yes, that's correct.

8 Q. Even though it's a function for only
9 gas customers?

10 A. I'm sorry, not just gas customers.
11 It's not a per customer --

12 Q. Per meter.

13 A. Well, it's not even per meter. Per
14 device. So as we look at the infrastructure
15 and the other devices that would be required
16 to enable Utility of the Future, you increase
17 the volume of devices that are included. So
18 not just per customer or per meter, but per
19 utility asset.

20 Q. Let me look at it this way. Of the
21 456,000 gas meters, it's generally one meter
22 per customer, correct?

23 A. Correct.

24 Q. So the customer that has the meter
25 would get the benefit of that meter and pay

1 the cost associated with the AMI attached to
2 that meter, correct?

3 A. Correct.

4 Q. If it was Utility of the Future for
5 gas customers, and I'm a gas customer with one
6 meter, would I pay more than 1/456,000 of the
7 cost?

8 A. No, I don't believe so.

9 Q. So whether it's Utility of the Future
10 or AMI, on the gas side, I would pay my
11 proportionate share as one of the 456,000
12 meters, correct?

13 A. That's correct.

14 Q. So when you were saying the lower
15 communications cost, it might be lower because
16 of more individual components, but because the
17 more components are still divided over the
18 same number of customers, it would still end
19 up being the same cost per natural gas
20 customer, correct?

21 A. Correct, if you're considering the
22 natural gas piece, yes.

23 Q. Do you know how many different
24 manufacturers offer the AMI systems?

25 A. No.

1 Q. Do you know how Duke was planning on
2 acquiring the AMI systems?

3 A. Do you mean are we going to purchase
4 it or lease it?

5 Q. Whichever, how Duke was planning to
6 acquire them, whether purchase, whether lease,
7 was it going to be competitively bid. Do you
8 know any of those details?

9 A. Yeah, we haven't determined that yet.

10 Q. Do you know if there's any Duke
11 affiliates that manufacture or are involved in
12 the manufacture of AMI?

13 A. Not that I know of.

14 Q. Does the AMI have two-way
15 communications capabilities?

16 A. Some do, yes, I believe some do.

17 Q. Do you know if the company was
18 contemplating using AMIs that have two-way
19 communications, or were they contemplating
20 using AMIs that do not?

21 A. We're looking at both.

22 Q. What are the benefits of having the
23 two-way communications capabilities in an AMI?

24 A. This is to a gas customer?

25 Q. Yes.

1 A. There's potential to be able to send
2 a signal to the meter or the meter collection
3 device to take an action. Generally the one
4 that's contemplated is to turn the gas flow
5 off.

6 Q. Under what circumstances, if you had
7 that two-way capability, would the company
8 contemplate turning the gas off?

9 A. The closing of an account is one
10 scenario. I don't know of others. I don't
11 know our standard protocol for turning a
12 customer off in non-account closing
13 situations.

14 Q. From a customer's perspective, can
15 you identify what you would perceive as any
16 benefits from having that two-way
17 communications capability?

18 A. It would reduce the need to have
19 utility employees on premise.

20 Q. And that would be because you could
21 turn the gas on or off remotely?

22 A. That's correct.

23 Q. If you know, does the ability to turn
24 natural gas on or off remotely, is that
25 consistent with the PUCO minimum gas service

1 standards?

2 A. I don't know that.

3 Q. Is the company considering the AMI
4 for both gas and electric?

5 A. Yes.

6 Q. Do you know what an automatic reading
7 device is, an AMR?

8 A. Yes.

9 Q. I'm sorry?

10 A. Yes.

11 Q. Can you explain your understanding of
12 what an AMR is?

13 A. An AMR is a device that collects the
14 meter data and transmits that meter data to a
15 remote location.

16 Q. Fundamentally, what is the difference
17 between an AMI and an AMR?

18 A. An AMR replaces the need to read the
19 meter, where an AMI system provides additional
20 functionality around the meter, the ability to
21 send information to do diagnostics, to
22 retrieve information other than the meter
23 read, in addition to the meter read.

24 Q. If the AMI does not have two-way
25 communications capabilities, what differences

1 would there be between an AMI and an AMR?

2 A. I don't think there are any.

3 Q. So is it basically an AMR is one-way
4 communications and an AMI is two-way
5 communications?

6 A. Yes, I think that's one way to
7 distinguish the two.

8 Q. Can you think of others?

9 A. The ability -- no, I can't.

10 Q. Do you know if Duke has any
11 affiliates that manufacture AMR devices?

12 A. Not that I know of.

13 Q. Again, as far as acquiring AMRs, do
14 you know if the company has made any decisions
15 on how it's going to acquire those devices?

16 A. No.

17 Q. On page 4 of the testimony, you talk
18 about meter data automatically transmitted to
19 the utility, and it lists on line 13 four
20 different ways to collect the data. Do you
21 see that?

22 A. Page 4?

23 Q. Page 4. The question reads, "How is
24 the meter data automatically transmitted to
25 the utility?"

1 A. Yes, I have that.

2 Q. The third line of that answer,
3 there's four manners listed there, correct?
4 There's fixed radio networks, fiberoptic
5 lines, power lines, and then broadband over
6 power lines, correct?

7 A. Yes.

8 Q. Now, when we're talking about the
9 natural gas system, are you still referring to
10 all four of those applying to natural gas
11 customers?

12 A. Yes, they could.

13 Q. Has the company made any decision
14 about which one of the four they would prefer
15 to use as a network to collect the data?

16 A. No, not yet.

17 Q. Is that something that is also still
18 being considered by the company?

19 A. Yes.

20 Q. Do you know if the cost associated
21 with those four differ, depending on which
22 device you use, which network you use?

23 A. Yes, they do.

24 Q. Do you know what the costs are for
25 the fixed radio networks?

1 A. I don't.

2 Q. Do you know what the cost is for the
3 fiberoptic lines?

4 A. I have, but not at my fingertips.

5 Q. Can you give me an approximation?

6 A. No, not at this time. It's on a
7 per-mile line basis, and I don't have the
8 number on the top of my head.

9 Q. How about power line carrier?

10 A. Is the question about the cost?

11 Q. Yes.

12 A. I don't have that either.

13 Q. Would that be similar to the optic
14 lines based on a per-mile cost?

15 A. No, it's dependent on the equipment
16 to put the signal on the power line.

17 Q. The broadband over power lines, do
18 you know what that cost would be?

19 A. No, although the issue is the same
20 for the power line, the cost of the equipment
21 to put the signal onto the power line.

22 Q. At this point, do you know which of
23 the four is the most expensive or the least
24 expensive?

25 A. I believe the fixed radio network is

1 the least expensive, and either the fiberoptic
2 or the broadband over power line are the most
3 expensive.

4 Q. And those costs would be included in
5 any kind of cost benefit analysis that the
6 company does?

7 A. Yes.

8 Q. So there would conceivably be four
9 different runs that would interpose each of
10 these four systems in the cost benefit
11 analysis, correct?

12 A. Yes. Although, if I can add, it
13 would probably even be more, because there
14 would be a combination of the communication
15 systems.

16 Q. So for example, it might be part
17 fixed radio network and part fiberoptic?

18 A. Yes, that's correct.

19 Q. And there could be all kinds of
20 permutations depending on the percentages of
21 each?

22 A. Yes, that's correct.

23 Q. On line 17, you talk about billing
24 and outage management systems?

25 A. Yes.

1 Q. When you reference outage management
2 systems, is that regarding natural gas or is
3 that regarding electric customers?

4 A. Well, it could be both. It would be
5 dependent on the frequency of the read to
6 assist in any outage or disruption of gas
7 service.

8 Q. Do you know offhand the last time
9 Duke Energy had an outage or disruption of the
10 natural gas system?

11 A. I don't.

12 Q. Do you know in fact if the company
13 has had any in the last five years?

14 A. I don't know that.

15 Q. And you understand that the type of
16 outages that you might get in a natural gas
17 system are very different than the kind of
18 outages you'd get on an electric system,
19 correct?

20 A. Yes, sir.

21 Q. And the difference being that on an
22 electric system, there are much more common
23 and frequent occurrences on parts of the
24 system, correct?

25 A. Yes.

1 Q. And those are generally related to
2 storm damage, power lines going down,
3 transformers being overloaded, things like
4 that, correct?

5 A. Yes.

6 Q. As far as any natural gas outages, do
7 you know what might be the causes for that
8 type of outage?

9 A. Supply disruption could certainly be
10 one. And then more individual, something
11 occurring at the customer's home.

12 Q. For example, if someone cut through a
13 service line going directly to a homeowner's
14 residence, correct?

15 A. Yes, that could be a scenario.

16 Q. Let me go to the next section and
17 find that reference. On page 2, line 20 of
18 your testimony, you talk about the type of
19 data to be transmitted. And again, focusing
20 on the gas side, by utilizing the AMI to its
21 greatest extent, what manual utility
22 operations have been supplanted or would be
23 supplanted?

24 A. The meter reading, off-cycle meter
25 reads, and potentially meter testing.

1 Q. Explain what you mean by potentially
2 meter testing.

3 A. Depending on the technology that we
4 use to collect the meter read, it may have the
5 ability to retrieve diagnostics from the meter
6 itself and transmit that over the network.

7 Q. Can you explain to me how utility
8 operations, in general, would be streamlined
9 by using an AMI?

10 A. In general, the information that is
11 now gathered manually on a periodic basis
12 would be available on demand, and that
13 information would then be used to make
14 operating decisions for the gas system.

15 Q. When we talk about making operational
16 decisions for the gas system, can you explain
17 how that -- what type of gas-specific
18 decisions might be made?

19 A. I don't know those off the top of my
20 head.

21 Q. Is there anybody else that's
22 testifying in this case that might be familiar
23 with what those would be?

24 A. I don't know.

25 Q. Is that something that's factored

1 into your cost benefit analysis?

2 A. No.

3 Q. But there are very specific things
4 that can be streamlined on the electric side,
5 correct?

6 A. Yes.

7 Q. What are some of those?

8 A. The meter reading is still there,
9 line switching, using capacitors and
10 transformers more effectively are a few
11 examples.

12 Q. And those would all be things on the
13 electric side that you could specifically
14 determine what the objective benefit or cost
15 savings would be from using those, correct?

16 A. Yes, sir.

17 Q. And as far as you know, there isn't
18 anything on the gas side that you could do the
19 same type of objective cost benefit
20 determination; is that correct?

21 A. I'm not aware of any.

22 Q. On page 3 of your testimony, I think
23 on line 6, you talk about -- or line 7, the
24 company has 194 meter readers who currently
25 walk routes?

1 A. Yes.

2 Q. And I believe earlier you indicated
3 that you thought that the cost was
4 approximately a dollar per customer?

5 A. Or something below a dollar, yes.

6 Q. And that's because the 194 meter
7 readers do both gas and electric meter reads;
8 is that correct?

9 A. Yes, that's correct.

10 Q. To the best of your knowledge, are
11 there any that do just gas or just electric,
12 or are all the meter readers interchangeable?

13 A. I don't know that. I guess maybe a
14 clarifying question, do you mean for customers
15 that only have electric or only gas?

16 Q. What I was asking was, do you know if
17 any of the 194 do just electric reads or just
18 gas reads, yes, for customers that aren't dual
19 fuel?

20 A. Yes, that's correct.

21 Q. That there are some meter readers
22 that do just single fuel ones?

23 A. I believe all of our meter readers
24 are capable of doing both gas and electric
25 reads. It depends on the route that they

1 have, yes.

2 Q. That's what I thought. I just wanted
3 to make sure we were clear on that.

4 You mentioned there on line 13 that
5 the company has approximately 60,000 keys in
6 its key room?

7 A. Yes.

8 Q. That would be out of the 456,000 gas
9 customers, correct, or are those keys gas and
10 electric?

11 A. I don't know if that's both.

12 Q. So whether it's 60,000 of your 456-
13 gas meters, or 60,000 of the 760- electric
14 meters, you don't know which that is, correct?

15 A. That's correct.

16 Q. Do you know how many indoor gas
17 meters the company has?

18 A. I don't have that at my fingertips.

19 Q. Do you know if it's more than 60,000?

20 A. Yes, I believe it is.

21 Q. So it's a number somewhere between
22 60- and 456,000?

23 A. Yes, sir.

24 Q. Do you know if the company currently
25 installs indoor meters on new customer bills,

1 or would the indoor meters be older meters on
2 older homes?

3 A. I believe it's the latter, the older
4 meters on older homes. I don't know of any
5 new-build situation where the meter is in the
6 home.

7 Q. To the extent that the company has to
8 replace or repair an indoor meter, does the
9 company generally try to move it from an
10 indoor location to an outdoor?

11 A. No, I don't believe so.

12 Q. You indicate on line 20 that
13 approximately six percent of bills are
14 estimated each month?

15 A. Yes.

16 Q. Do you know if that's six percent of
17 residential gas or six percent of residential
18 electric customers?

19 A. I don't know.

20 Q. On line 22, you talk about a
21 significant number of calls made to your call
22 center. Do you know how many that would be?
23 What is your approximation of significant
24 number?

25 A. I don't know that. I'm sorry.

1 Q. So you couldn't estimate if it's more
2 than 10, more than 50, more than 100 per
3 month?

4 A. No, sir.

5 Q. If you don't know the number, how can
6 you call it a significant number?

7 A. I believe it's more than the number
8 of calls that we receive on non-estimated
9 bills, so we've estimated it to be
10 significant.

11 Q. How many calls do you get to your
12 call center on a monthly basis for reasons
13 other than estimated bills?

14 A. I don't have that information with
15 me.

16 Q. Here's the question I have. If you
17 don't have that number, how can you tell me
18 that the other number is significant compared
19 to it?

20 A. I don't have the number with me.
21 That's information that we've looked at.

22 Q. You talk about customer complaints
23 there. Can you give me an estimate of how
24 many customer complaints you get resulting
25 from estimated bills?

1 A. No, that's the same. I have that
2 information, just not with me.

3 Q. Then you list costly off-cycle meter
4 reads. Can you give me a number of how many
5 calls you get regarding off-cycle meter reads?

6 A. I don't have that number with me
7 either.

8 Q. To the extent that you've reviewed
9 the numbers, do you know if they're gas only
10 or if they're gas and electric?

11 A. It's a combination of gas and
12 electric.

13 Q. So do you know if there's a breakdown
14 for natural gas only?

15 A. I believe there is. I don't have
16 that.

17 Q. Have you seen the number for gas
18 only?

19 A. I don't know if the number I've seen
20 is for gas only or for the combination.

21 Q. So it's possible that the significant
22 numbers you were talking about were for the
23 combination and not for gas-only customers,
24 correct?

25 A. Yes.

1 Q. So it's possible that the numbers are
2 very minimal for gas only, correct?

3 A. They could be.

4 Q. Now, when you talk about company
5 costs associated with the call center, have
6 you broken down the call center costs per
7 call?

8 A. I'm sorry, for the cost benefit
9 analysis?

10 Q. Yes.

11 A. Yes, we do have a per-cost call.

12 Q. Do you know what that number is?

13 A. I don't have it at my fingertips.

14 Q. Is that something that's in the cost
15 benefit analysis that the company has?

16 A. Yes, I believe it is.

17 Q. When an AMI device is used, do you
18 know if that's a hundred percent accurate?

19 A. I don't know if it's a hundred
20 percent accurate.

21 Q. Do you know what percentage of
22 accuracy is contributed to AMI devices?

23 A. I believe the sales literature we've
24 seen is upward of 95 percent.

25 Q. Do you know what the accuracy rate is

1 for AMR devices?

2 A. I don't.

3 Q. Do you know if it might be greater or
4 lesser than the 95?

5 A. I believe the information I've seen
6 is the same. In fact, I believe that the
7 technology that obtains the meter read is the
8 same, and it has the same accuracy. And then
9 the communications system is a differentiator,
10 and it doesn't affect the accuracy.

11 Q. And the same fundamental devices
12 would do the reading under the Utility of the
13 Future scenario, correct?

14 A. Yes, that's correct.

15 Q. So the accuracy rate under Utility of
16 the Future would be the same 95 percent?

17 A. Yes, although 95 percent is what we
18 have been given by vendors. We haven't
19 verified that ourselves.

20 Q. Absent of being able to verify it
21 yourselves, it's reasonable to use the
22 95 percent figure?

23 A. I believe so.

24 Q. I assume that you've looked at what
25 other companies have achieved using AMI or AMR

1 devices?

2 A. Yes, we have.

3 Q. Are you comfortable that the
4 95 percent rate is a rate that is achieved by
5 other companies that use these devices?

6 A. Yes, I think it's higher than 95, but
7 I think 95 is a safe assumption we've been
8 given.

9 Q. Now, on page 4 of the testimony, you
10 talk about the other components of the Utility
11 of the Future project. Do you see that, at
12 the bottom of the page?

13 A. On page 4?

14 Q. Page 4, yes. There's a question on
15 line 18.

16 A. Yes.

17 Q. And I believe in your answer that
18 carries over onto page 5, there's five things
19 listed that the Utility of the Future involves
20 in addition to the AMI. Do you see that?

21 A. Yes.

22 Q. I'd like to take those one at a time,
23 if we could.

24 A. Okay.

25 Q. The first one says "automating the

1 distribution system to enable the company to
2 be able to monitor the actual condition of
3 system components, and redesigning maintenance
4 programs." Do you see that?

5 A. Yes.

6 Q. What you're talking about there was
7 your ability to do diagnostics remotely
8 instead of doing them on a random basis; is
9 that correct?

10 A. Yes.

11 Q. Is there anything in addition under
12 this automating the distribution system that
13 you're referring to there?

14 A. I believe what is detailed out is
15 accurate. So there's the diagnostic, and then
16 planning based on that information flow.

17 Q. Have you quantified the cost savings
18 achievable by doing this diagnostic rather
19 than the random testing that's done currently?

20 A. Yes.

21 Q. Do you know what that benefit is
22 quantified to be?

23 A. No, not off the top of my head. I'm
24 sorry.

25 Q. And that's included in your cost

1 benefit analysis?

2 A. Yes.

3 Q. The second item you listed is
4 "improved outage management." Again, when we
5 talk about natural gas customers there, what
6 do you mean by improved outage management?

7 A. It would have limited application for
8 gas customers and it would be for service
9 disruptions that we discussed earlier.

10 Q. The third item is "enabling direct
11 load control programs." Can you tell me how
12 this would impact a natural gas customer?

13 A. I don't believe it would.

14 Q. The fourth item is "communicating the
15 usage information to customers on a timely
16 basis." I believe you indicated that was the
17 two-way communications during the month if the
18 customer wanted to know what their bill would
19 be; is that correct?

20 A. Yes.

21 Q. Was there anything in addition to
22 that that you contemplated here?

23 A. No.

24 Q. Then it says "developing new
25 conservation/demand side management programs."

1 Can you explain, on the natural gas side, what
2 these new conservation/demand side management
3 programs involved?

4 A. I don't believe they have been
5 developed in detail, but they would revolve
6 around the prior information flow we had
7 talked about on a more timely basis versus the
8 once a month in arrears.

9 Q. For natural gas, that would simply
10 mean using less gas for that particular
11 appliance?

12 A. Yes, that's correct.

13 Q. There's no other new type of programs
14 or new types of devices that you're
15 contemplating here, correct?

16 A. Well, new consumption devices would
17 potentially fall in this category, but we have
18 not developed any programs around that.

19 Q. On the flip side, what are you
20 talking about on the electric side when you
21 talk about conservation/demand side management
22 programs?

23 A. Shifting the time of consumption is
24 one example. Higher efficiency consumption
25 devices is another. There are probably

1 others. There are many in development that
2 don't have detail yet.

3 Q. For example, if you had an electric
4 dishwasher, running the dishwasher at a time
5 of day when the rates were lower on the
6 electric side, correct?

7 A. Yes.

8 Q. To the extent that natural gas is
9 used to heat the home, really the only way to
10 do any conservation there is to just turn your
11 thermostat down, correct?

12 A. Yes.

13 Q. And to the extent you're using
14 natural gas to heat water, unless you're
15 washing clothes with a gas water heater, you
16 really don't have the ability to shift that
17 load, do you?

18 A. No.

19 Q. Do you know any other type of gas
20 appliances where you could shift the load to
21 take advantage of cheaper rates?

22 A. Not that I know of.

23 Q. In fact, as we discussed earlier,
24 currently gas rates are based on a monthly
25 basis, not on any particular time of day

1 rates, correct?

2 A. I believe so.

3 Q. So even if you could shift usage, it
4 really wouldn't make a difference on a billing
5 basis, correct?

6 A. Yes.

7 Q. On page 5 of your testimony, you talk
8 about the pre-deployment activities that the
9 company has done to date?

10 A. Yes.

11 Q. Can you tell me how much the company
12 has spent during the test year for these
13 pre-deployment activities on the gas side?

14 A. I don't have that at my fingertips.

15 Q. Do you know if that number is
16 included in any of the application that the
17 company made?

18 A. I don't know that.

19 Q. Would that number be included in the
20 cost benefit analysis?

21 A. No.

22 Q. Why wouldn't that number be included
23 in the cost benefit analysis?

24 A. The cost benefit analysis doesn't
25 include dollars spent to date. It includes

1 costs that are forward looking that would be
2 required to build out the infrastructure and
3 the resulting benefits.

4 Q. Do you have any quantification of the
5 benefits achieved to date as a result of the
6 costs that have been incurred?

7 A. No.

8 Q. So the company hasn't been able to
9 document any savings to date?

10 A. We haven't deployed any
11 infrastructure to date. I'm sorry. Just to
12 be clear, the pre-deployment activities we're
13 doing currently is working the cost benefit
14 analysis and the equipment selection, which
15 will then result in the equipment being put in
16 the field to determine if the benefits can be
17 achieved.

18 Q. So the company hasn't spent any money
19 on any actual devices for the natural gas
20 system yet, has it?

21 A. I believe we are currently. We have
22 just expanded. We are in the process of
23 procuring equipment to put on our system.

24 Q. Do you know what kind of equipment
25 you're currently procuring?

1 A. We are procuring meter modules which
2 capture the meter read, and we're also
3 acquiring a fixed radio -- not a network --
4 fixed radio pieces to connect to our
5 communication network.

6 Q. And those would be pieces of
7 equipment that the company would have at its
8 location that would receive the information
9 from customers, correct?

10 A. Yes, that's correct.

11 Q. Do you know if any of those purchases
12 are listed in the test year in this
13 proceeding?

14 A. I don't know that.

15 MR. FINNIGAN: Excuse me. Can we go
16 off the record for a moment?

17 (There was a discussion off the
18 record followed by a brief recess.)

19 MR. SERIO: Mr. Smith's deposition is
20 going to continue, and Mr. Riddle's
21 deposition, which was supposed to start at
22 10:30, is now also being conducted
23 telephonically on a different call-in line.
24 At this point, there have been no other
25 intervenors that have joined this call looking

1 for the Riddle deposition. To the extent
2 anyone else does call in, we will notify them
3 of the other dial-in number and participant
4 code so that they can participate in
5 Mr. Riddle's deposition. Otherwise, we will
6 continue with Mr. Smith's deposition.

7 However, there is new counsel for the
8 company, and he will identify himself.

9 MR. D'ASCENZO: My name is Rocco
10 D'Ascenzo, business address is 139 East Fourth
11 Street, Cincinnati, Ohio, 45201.

12 MR. SERIO: Thank you.

13 Mr. Smith, if you're ready, we'll
14 continue with the questioning.

15 THE WITNESS: Yes, thank you.

16 BY MR. SERIO:

17 Q. Just before we broke, I had directed
18 you to page 6 of your testimony. It carries
19 over to page 7, and you identify there a
20 number of deployments that Duke Energy has
21 begun. You list Cincinnati; Charlotte,
22 North Carolina; Greenville, South Carolina;
23 Northern Kentucky; and Indiana. Do you see
24 those?

25 A. Yes.

1 Q. Can you tell me if any of those other
2 utilities are natural gas, or if those are a
3 combination, or electric utilities?

4 A. Cincinnati and Northern Kentucky are
5 both combination utilities. The North and
6 South Carolina and Indiana are all electric
7 only.

8 Q. To the extent that Northern Kentucky
9 is a combination utility, what specific
10 deployment have you done on just the gas side
11 there?

12 A. None. It's all been combined with
13 the electric.

14 Q. So it's safe to say that, to date,
15 the company doesn't have any experience on
16 deployment with any Utility of the Future
17 infrastructure regarding just natural gas
18 customers, correct?

19 A. No. I'm sorry. There are some
20 customers in Northern Kentucky that are gas
21 customers only, and they do have the meter
22 infrastructure in place.

23 Q. Do you know how many customers that
24 might be?

25 A. I don't. I can give you a number.

1 Less than a thousand, but I don't know how
2 many it is.

3 Q. To the extent that you have some
4 equipment for that less than a thousand
5 customers in Northern Kentucky, what type of
6 equipment is it?

7 A. It's currently a mobile radio network
8 where the module on top of the meter sends out
9 a radio signal, which is then picked up by a
10 vehicle.

11 Q. Is that used in conjunction with AMR
12 or AMIs?

13 A. It's a transition solution to an AMI
14 deployment in that area. Once the AMI
15 infrastructure is completed, the vehicle will
16 no longer need to be deployed. It will become
17 a fixed radio network.

18 Q. So have the AMIs already been
19 installed on homes?

20 A. Yes.

21 Q. And all that does is picks up the
22 signal for the AMI until the company has its
23 own facility ready?

24 A. Yes, that is correct.

25 Q. That would be the same type of system

1 that you had proposed in the Duke Energy of
2 Ohio system?

3 A. A similar one. We're not proposing
4 the transition period where we would need to
5 pick up the read with a vehicle.

6 Q. But the AMI aspect of it would be the
7 same as what you're proposing for Duke,
8 correct?

9 A. On the gas side, yes.

10 Q. Do you know what the cost was per
11 customer in Northern Kentucky?

12 A. I don't have that with me.

13 Q. Did the company do a cost benefit
14 analysis in that case?

15 A. Yes.

16 Q. Was that similar to the cost benefit
17 analysis that you've done in this case?

18 A. Yes, it's similar.

19 Q. So if I look at the cost benefit
20 study that you've done in Ohio, it would be
21 similar to what you did down in Kentucky to
22 determine whether it was cost efficient to put
23 that system in place?

24 A. Yes, for the gas piece, it will be
25 similar.

1 Q. On page 7 of your testimony, lines 15
2 through 17, you talk about the major benefits
3 of the Utility of the Future project for
4 customers. Do you see that?

5 A. Yes.

6 Q. Let's go through those one at a time,
7 if we could.

8 A. Okay.

9 Q. The first one is "reduced meter
10 reading costs." I think you've indicated
11 that's just the less than one dollar cost that
12 would be achieved because you don't have to
13 physically go out and read meters; is that
14 correct?

15 A. Yes, that's correct.

16 Q. The second one is "reducing the need
17 to enter customers' homes." Is there a cost
18 associated with that, that you've quantified?

19 A. Yes, there is.

20 Q. Do you know what that cost is?

21 A. It's in the meter reading costs.

22 Q. So the less-than-dollar cost would
23 include the cost of entering into the
24 consumer's home to read the meters?

25 A. Yes, that's right. It's a blended

1 rate. It's a meter reading budget divided by
2 the number of reads that we do per year. So
3 the additional cost of entering a customer's
4 home is included in that cost.

5 Q. So to the extent that you've listed
6 two items there, it's really combined into
7 one; it's still just meter reading cost?

8 A. Yes, the way we track that cost,
9 that's right, it's one cost. We believe
10 there's an additional expense to enter the
11 customer's home, and it reduces the number of
12 meter reads that can occur in a route.

13 Q. But that savings is already
14 calculated within the approximate 90 cent
15 savings that you attribute to saving meter
16 reading costs, correct?

17 A. Yes, that's the portion we've
18 quantified. The portion that we haven't been
19 able to quantify is the cost of carrying the
20 key room and any associated costs that might
21 be there, like greater liability or insurance
22 requirements that we need to maintain.

23 Q. I think the third item you have here
24 is fewer billing adjustments and re-billing.
25 Is that all one item or is that two separate

1 items?

2 A. They're together.

3 Q. Have you quantified the savings
4 achieved from fewer billing adjustments and
5 re-billing?

6 A. Yes.

7 Q. Do you know what that figure is?

8 A. I don't. It's in the cost benefit.

9 Q. Can you give me an approximation?
10 Less than a dime, less than a quarter?

11 A. We have it on an annual dollar
12 amount, not a per-meter type number. Again, I
13 don't have that at my --

14 Q. And you couldn't estimate if it's
15 more than \$10,000, \$25,000?

16 A. I don't. I just don't have that at
17 the top of my head. I apologize.

18 Q. That's fine. I just wanted to
19 explore if you could give me an estimate.

20 Finally, you have the "greater
21 availability of conservation programs." I
22 believe earlier we talked about conservation
23 programs with natural gas. Would the answer
24 be the same, that it's really limited to the
25 ability to further reduce consumption based on

1 the cost and how much you've used to that
2 point in time being conveyed to the customer?

3 A. Yeah, I think that's the primary.
4 The secondary would be more efficient
5 appliances.

6 Q. Are you saying that more efficient
7 appliances would go hand and hand with Utility
8 of the Future?

9 A. They could, yes.

10 Q. Are you aware of anything that would
11 limit a customer's ability to do more
12 efficient appliances under the current system
13 that the company has in place today?

14 A. No.

15 Q. So it could be done in conjunction,
16 but it's not necessarily something that we're
17 going to see more of just because of Utility
18 of the Future?

19 A. I don't know if we'll see more or
20 not. It's not exclusive to Utility of the
21 Future.

22 Q. To the extent that you talk about the
23 conservation with customers using less gas,
24 are you familiar with the company's filing in
25 this case to increase the amount of cost that

1 it recovers as the fixed part of the bill
2 versus the variable part of the bill?

3 A. Not in detail.

4 Q. Are you familiar with it in general?

5 A. Just the concept, I believe, yes.

6 Q. To the extent that you're familiar
7 with the concept, recovering more costs in the
8 fixed portion means that there's less costs
9 recovered in the variable portion. So to the
10 extent that a customer reduces usage, their
11 ability to reduce their usage part of the bill
12 is less than it would be otherwise; is that
13 correct?

14 A. Yes, I believe that's correct.

15 Q. On line 20, you quote 95 percent
16 reduction in manual reading network coverage?

17 A. Yes.

18 Q. Does that mean that you would be able
19 to avoid having to do reads for approximately
20 95 percent of customers, but there still might
21 be 5 percent where you still had to do more
22 conventional meter reads?

23 A. Yes, that's correct.

24 Q. What situations would that involve?

25 A. Situations where we don't have a

1 readily available communications system. If a
2 fixed radio network, for example, cannot
3 either penetrate the home or is not available
4 in the area.

5 Q. So it's really more a question of the
6 availability of the signal to get out rather
7 than limitation on putting the equipment in
8 the customer's premises?

9 A. Yes, although not exclusive. There
10 are some meters in our service territory that
11 are not capable of accepting the meter reading
12 module, and the meter itself would need to be
13 upgraded or replaced.

14 Q. In those situations, as long as the
15 meter is operating, you don't have plans to
16 replace it?

17 A. That's right. At this point we
18 don't, although that's part of the
19 consideration.

20 Q. Your preference would be to simply
21 replace those as they wear out or have
22 accuracy problems?

23 A. I believe that's the way we operate
24 today. I think what we're considering is if
25 there's a cost beneficial way of accelerating

1 that replacement.

2 Q. If you could turn to page 8 of your
3 testimony, at the top of the page, you talk
4 about the company's safety performance, and
5 you indicated "should improve"?

6 A. Yes.

7 Q. You talk about the safety incidents.
8 How do you define the safety incidents?

9 A. I believe we use a standard OSHA
10 definition, but I'm not positive. But what
11 we're referring to, though, are accidents that
12 are generally incurred by our meter readers as
13 they are doing their cycle.

14 Q. Do you know currently how many safety
15 incidents are reported in a year?

16 A. I have that, again, in the cost
17 benefit, but I don't have it ready.

18 Q. As part of the cost benefit analysis,
19 did you just assume there would be zero
20 incidents in the future under the Utility of
21 the Future scenario?

22 A. No, not zero. We had scaled it down.
23 We looked at the type of injuries that occur.
24 We made assumptions around which ones could
25 potentially be either reduced or eliminated

1 and then made adjustments. But we didn't
2 completely zero it out.

3 Q. Then on line 4, you indicate these
4 costs should be reduced. That, again, is
5 based on your assumptions, correct?

6 A. That's correct.

7 Q. There are no assurances that there
8 actually would be any savings there?

9 A. That's right.

10 Q. And then when it comes to determining
11 the cost associated with the safety incidents,
12 do you know, ballpark, what kind of money
13 we're talking about on an annual basis?

14 A. I don't. I know I can tell you it
15 includes lost time for the company, the
16 employee insurance, both preventative and
17 health insurance, to pay for the incident. I
18 don't know an estimate of the dollar figure,
19 though.

20 Q. Could you ballpark less than a
21 hundred thousand dollars, more than a hundred
22 thousand dollars?

23 A. I believe it was more than a hundred
24 thousand, but not significantly more. This
25 also is combined electric and gas. When we

1 have combined accounts of electric and gas,
2 it's difficult to assign the injury to one or
3 the other.

4 Q. For sake of argument, if it was
5 \$100,000, just so we can use a number, and
6 it's combined gas and electric, you've got
7 approximately 450,000 gas meters and 760,000
8 electric meters. Would you add those two and
9 get a percentage and say then for the gas
10 side, it's the percentage associated with
11 450,000 meters?

12 A. Yes, we could apportion it that way.

13 Q. Is that the way the company did it in
14 the cost benefits study?

15 A. No.

16 Q. Can you tell me how it was done
17 different from that?

18 A. It wasn't apportioned to get to gas
19 and electric.

20 Q. So how was the benefit assigned to
21 gas-only customers?

22 A. We didn't assign it to gas-only
23 customers.

24 Q. On page 8 of your testimony, on line
25 14, you talk about improving the company's

1 cash flow. Do you see that?

2 A. Yes.

3 Q. Did you do an analysis of how much
4 improvement would occur to the company's cash
5 flow?

6 A. We did.

7 Q. Is that factored in to the company's
8 risk assessment in this proceeding?

9 A. I don't know that. I'm sorry. I'm
10 not sure I know what risk assessment you're
11 referring to.

12 Q. Are you familiar with the rate of
13 return testimony the company filed in this
14 proceeding?

15 A. No, not in detail.

16 Q. But you're familiar that the company
17 did file rate of return testimony?

18 A. Yes.

19 Q. Is it your understanding that that
20 rate of return testimony is an attempt to
21 quantify the risk to the company from
22 operating the natural gas business?

23 A. I don't know. I'm sorry. I'm not
24 that familiar with the filing.

25 Q. To the extent that the Utility of the

1 Future would improve the company's cash flow,
2 would you agree with me that that would reduce
3 the risk that the company would face from
4 under-collecting revenues that it was assigned
5 to collect?

6 A. I don't know. If I can, I'll address
7 the cash flow benefit that we looked at. It
8 was the reduced time from collecting a meter
9 read to actually sending the bill to the
10 customer.

11 Q. So to that extent, it would be more
12 involved with cash working capital?

13 A. Yes, I think that's accurate.

14 Q. Do you know if this reduction in risk
15 was factored in to the company's cash working
16 capital documentation that was filed in this
17 proceeding?

18 A. I do not.

19 Q. Can you think of a reason why it
20 would not have been included?

21 A. No, I can't, unless it was unknown,
22 unless they didn't know about the analysis.

23 Q. When you say, unless they didn't
24 know, you mean the people that filed the
25 application with the cash working capital

1 components?

2 A. Yes, I'm sorry. That's correct.

3 Q. But the company does know the
4 benefit; you just don't know if it was
5 conveyed to the other folks in the company
6 that would have done the cash working capital?

7 A. Yes, precisely.

8 Q. Beginning on line 15, you talk about
9 the type of costs the company will incur for
10 the Utility of the Future project. Do you see
11 that on page 8?

12 A. Yes.

13 Q. The capital start-up and design cost,
14 has the company incurred any of those costs
15 yet for the gas side of the business?

16 A. Yes.

17 Q. Can you detail for me what has been
18 involved to date on the gas side only?

19 A. No, I don't know if it's been
20 apportioned to gas side only.

21 Q. So the company has begun the
22 investment; you just don't know how it's being
23 assigned?

24 A. Yeah, and I'm sorry. I was reading
25 through the testimony beginning with the IT

1 systems. As we get into the other enumerated
2 items about metering and metering equipment,
3 yes, we do have that assigned by the cost of
4 the meter module. And I don't have that at my
5 fingertips.

6 Q. Is that in the cost benefit analysis
7 at all?

8 A. Yes, I believe we used the same meter
9 module cost, although the proposed
10 communication network is different. So that
11 cost is not the same for Northern Kentucky as
12 Cincinnati.

13 Q. To the extent that Duke is a
14 combination utility, the cost benefit analysis
15 is done for both gas and electric, correct?

16 A. Yes.

17 Q. Does the cost benefit analysis also
18 run the analysis for just the gas side of the
19 business?

20 A. No, it doesn't.

21 Q. So do you know if the company could
22 justify the cost of the Utility of the Future
23 for just the gas side of the business?

24 A. No, I don't believe we could.

25 Q. No, you don't think you could do the

1 analysis, or no, you don't think --

2 A. I'm sorry. I thought the question
3 was could we justify.

4 Q. Yes, I just wanted to make sure --

5 A. Yes, we could do the analysis.

6 Q. But you don't think you could justify
7 for the gas-only side?

8 A. I think the cost would be greater
9 than the benefits if we were only doing gas.

10 Q. On page 11 of your testimony, at the
11 bottom of the page there, you talked about
12 being permitted to recover costs even though
13 they might not meet the Commission's
14 traditional used and useful standard?

15 A. Yes.

16 Q. You had indicated previously that you
17 were an attorney, so you're familiar with what
18 the used and useful standard is in Ohio,
19 correct?

20 A. Yes.

21 Q. And what the company is asking for
22 there is that the Commission essentially would
23 no longer hold the company to the standard
24 that is set forth in the statutes for Ohio
25 rate making?

1 A. Yes, I believe that's correct.

2 Q. What is the justification for asking
3 the Commission not to include the same
4 standard for this particular component?

5 A. I believe, as we described above in
6 the testimony, because this is new technology
7 that we're looking at and the rapid change in
8 technology, that if an unforeseen change
9 occurs that would render the technology
10 obsolete, that we would want to have a way to
11 treat those costs.

12 Q. To the extent that the technology is
13 so new and changing so rapidly, would it not
14 make sense to wait until other companies have
15 gone down this road to determine that the
16 investment is going to be a sound one that
17 isn't going to become obsolete in a short
18 period of time?

19 A. I think that's part of the cost
20 benefit and risk analysis that we are working
21 on now. I think that it turns on the benefits
22 that are forgone in that time frame.

23 Q. To the extent that the Commission
24 were to change the standard, essentially it
25 would be shifting the risk from the company to

1 the customer, correct?

2 A. I don't know that for sure. And I'm
3 relying, I guess, on my knowledge of used and
4 useful, which is not a technical
5 understanding.

6 Q. I understand. Again, I realize you
7 aren't practicing as an attorney, but I just
8 wanted to explore the limits to what your
9 understanding was. On page 12 of your
10 testimony, I think you list some reasons there
11 that would affect the plans for deployment?

12 A. Yes.

13 Q. I believe there are three of them
14 that you list there. Under the second one,
15 are you aware of any gas-only distribution
16 companies in the United States that are doing
17 anything similar to the Utility of the Future?

18 A. No, not that I'm aware of.

19 Q. Your third reason there, you talk
20 about the Commission investigating smart
21 metering standards. You're referring to the
22 Ohio Public Utilities Commission there,
23 correct?

24 A. Yes, that's correct.

25 Q. And you're referring to an electric

1 docket, the 05-1500-EL-COI docket?

2 A. Yes, I believe that's the one.

3 Q. So that is the Commission looking at
4 meters for the electric side of the business,
5 not the gas side, correct?

6 A. We looked at both during the
7 Commission proceedings, so I'm not sure their
8 intent. Although I do know from a Duke Energy
9 perspective, we looked at and addressed both
10 type of meters.

11 Q. Are you aware of any other gas
12 utilities that provided information to the
13 Commission for gas only in that docket?

14 A. No, not that I'm aware of.

15 Q. And you have participated in that
16 docket, correct?

17 A. Yes.

18 Q. So if a gas-only utility in Ohio had
19 provided any information, you would be in a
20 position to be aware of that?

21 A. Yes, I believe all the documents were
22 made available to the public.

23 Q. And you had access to all those
24 documents, correct?

25 A. Yes.

1 Q. If you could now turn to the
2 documents that we have sent to you
3 electronically that I think you were able to
4 make copies of.

5 A. Yes.

6 MR. SERIO: And for your counsel, I
7 don't know if Mr. Finnigan left you the two
8 documents.

9 MR. D'ASCENZO: He did not.

10 THE WITNESS: Rocco, are you by your
11 e-mail?

12 MR. D'ASCENZO: I am.

13 THE WITNESS: I'll forward this on to
14 you.

15 MR. D'ASCENZO: Great.

16 MR. SERIO: I'll identify them while
17 he's doing that. One of them is a document
18 entitled "Utility of the Future, Public
19 Utilities Commission of Ohio, Smart Metering
20 Workshop, December 13, 2007." That is an
21 11-page document. I'd like to mark that as
22 Smith Deposition Exhibit 1.

23 (Whereupon, Smith Exhibit 1 was
24 marked for identification.)

25

1 BY MR. SERIO:

2 Q. Mr. Smith, are you familiar with this
3 document?

4 A. Yes.

5 Q. What is your familiarity with this
6 exhibit?

7 A. I helped create and present the
8 material.

9 Q. So you're familiar with pretty much
10 everything that's in this document, correct?

11 A. Yes.

12 Q. When you presented it, this was
13 presented to the Public Utilities Commission
14 of Ohio in the Smart Metering Workshop in the
15 05-1500 docket, correct?

16 A. Correct.

17 Q. When you gave this presentation, it
18 was given as both gas and electric, or
19 electric only?

20 A. Both, gas and electric.

21 Q. Under the "Vision," where you talk
22 about intelligent devices, other than AMI or
23 AMR, for the gas side of the business, is
24 there anything that you had in mind there?

25 A. No, not for the gas side of the

1 business.

2 Q. Automated components and distribution
3 system. Again, other than AMI and AMR for the
4 gas side of the business, is there anything
5 that you contemplated there?

6 A. No, not for automation.

7 Q. When you talk about operational
8 efficiencies, those would be the efficiencies
9 that we discussed previously regarding meter
10 reading costs, correct?

11 A. Yes.

12 Q. To the extent that you talk about
13 customer satisfaction, on the gas side,
14 specifically what are you referring to?

15 A. It's general customer satisfaction,
16 so it would be around the meter read, billing,
17 reducing estimated bills, reducing the need to
18 access the customer's premise.

19 Q. Again, basically that discussion we
20 had previously regarding your testimony on
21 that, correct?

22 A. Yes, correct.

23 Q. There's a diagram on page 2 right
24 next to where it says "Vision" and
25 "Definition." For the gas side, it would be

1 the lower right-hand corner of that document,
2 correct, that figure?

3 A. Yes, the residential sector.

4 Q. For residential customers, you're
5 only talking about the line between the home
6 and where it says "Distribution Substation,"
7 correct?

8 A. Well, yes, primarily.

9 Q. Because the other parts would be for
10 commercial or industrial customers, correct?

11 A. They would be. And one part that's
12 not showing on the diagram, I guess, is the
13 back office equipment and IT requirements.

14 Q. So we're missing back office and IT?

15 A. Yes.

16 Q. Is anything else missing from that
17 diagram?

18 A. No.

19 Q. Then under your definition of Utility
20 of the Future, you talk about increased
21 reliability, reduced outages, outage duration.
22 Is that with regards to electric or is that
23 with regards to natural gas?

24 A. Primarily for electric.

25 Q. When you talk about energy efficiency

1 there, again, is that natural gas or is that
2 primarily electric?

3 A. Primarily electric.

4 Q. Page 3 of this document, part of this
5 page says "20th Century Grid" and "21st
6 Century Grid"?

7 A. Yes.

8 Q. And the 21st Century Grid is the
9 company's vision using the Utility of the
10 Future, correct?

11 A. Yes.

12 Q. About halfway down, they're talking
13 about semiautomated restoration and
14 self-healing. Is that referring to
15 electricity or natural gas?

16 A. Electricity.

17 Q. Of the items that are listed under
18 21st Century Grid, would it be fair to say
19 that the majority of those are for the
20 electric side?

21 A. Yes.

22 Q. Can you point to any of those that
23 would be for a stand-alone gas customer?

24 A. For a stand-alone gas customer?

25 Q. Yes, just for the natural gas side of

1 the business.

2 A. The decision support systems and
3 predictive reliability is probably the only
4 one I see there that would apply to
5 stand-alone gas.

6 Q. And that would be, again, to the
7 extent that you'd be able to potentially
8 monitor meters for failure and be able to do
9 something proactively instead of doing random
10 checks, correct?

11 A. Correct.

12 Q. The other half of the page says
13 "Consider the following:" The first one is,
14 "What would it cost to read meters daily?"
15 That was referenced more to the electric side
16 than the gas side, correct?

17 A. It is referenced to electric,
18 although it could apply to gas.

19 Q. When you talk about real-time
20 pricing, again, that was intended for
21 electric, correct?

22 A. Yes.

23 Q. But it could be for gas if the
24 company ever decided to do pricing in that
25 manner?

1 A. That's correct.

2 Q. On page 4, without going through
3 everything on this page, starting on the
4 left-hand side there, it says "Manual meter
5 reading." It talks about kWh reads. That's
6 referencing electric, correct?

7 A. Yes, that's correct.

8 Q. The next block under AMRs, again,
9 references kWh. That's electric?

10 A. Yes.

11 Q. Under "Advanced Metering
12 Infrastructure," it talks about TOU, RTP, CPP.
13 Can you tell me what those are?

14 A. Yes. TOU is time of use pricing.
15 RTP is real-time pricing. And CPP is critical
16 peak pricing.

17 Q. And those, again, refer to electric
18 and not gas, correct?

19 A. Currently, yes.

20 Q. Demand response that's listed there
21 also refers to electric and not gas?

22 A. Currently, yes.

23 Q. Under the "Smart Meters," for
24 example, it talks about voltage readings,
25 current readings, detailed power outage data,

1 do you see those?

2 A. Yes.

3 Q. Those, again, would be electric and
4 not natural gas, correct?

5 A. Yes.

6 Q. Finally, under the digital grid for
7 Utility of the Future, it talks about phase
8 balancing, transformer optimization, outage
9 and GIS, those are all electric-related,
10 correct?

11 A. Correct.

12 Q. Can you tell me what the GIS means
13 there?

14 A. Geographic Information System. It's
15 our asset to mapping system. That would apply
16 to gas and electric.

17 Q. That's just how the company has its
18 mapping system, correct?

19 A. Exactly, how we map our assets.

20 Q. If you turn to page 6 of this
21 document, at the top of the page, it says "The
22 Benefits of the Digital Grid - Operations."

23 A. Yes.

24 Q. Under "Direct Load Control," it talks
25 about peak shaving, decreased reserve

1 generation, reduced emissions. Those are all
2 only for the electric side of the business,
3 correct?

4 A. Yes.

5 Q. Under "Distribution," for reduced
6 capacitor and substation costs, VAR
7 management, voltage control, voltage
8 monitoring, again, those are all for the
9 electrical side of the business and not the
10 gas side, correct?

11 A. Yes.

12 Q. Can you tell me what VAR management
13 is?

14 A. I'm sorry, I don't know the VAR
15 acronym, but it's reactive power management
16 and how we manage the flow of electrons on our
17 electric grid.

18 Q. It has nothing to do with vegetation
19 control?

20 A. No.

21 Q. Page 7, under Benefits of the Grid -
22 Customers, it says "Tariff Optionality."

23 A. Yes.

24 Q. "Enable time of use and/or critical
25 peak pricing rate offerings." Again, that's

1 intended to apply to electric at this time,
2 correct?

3 A. Yes, currently for electric.

4 Q. Under "Energy Services Offerings,"
5 energy efficiency programs and energy savings,
6 that again is intended for electric?

7 A. Yes.

8 Q. Page 8 of this document, "Concepts
9 evaluated in the SAIC and EPIC study." First,
10 can you tell me what those two acronyms stand
11 for?

12 A. I hope so. SAIC is a consulting
13 organization, and I believe it may just be
14 SAIC. If it stands for something, they're a
15 technology consulting group. EPIC is an
16 Energy Policy Institute at the University of
17 San Diego.

18 Q. Who commissioned these two studies?

19 A. These two organizations. SAIC and
20 Epic commissioned the study using the
21 San Diego Gas & Electric system as their
22 model.

23 Q. Was that for the gas system only, gas
24 and electric only, or electric only?

25 A. Primarily the electric.

1 Q. So where it says "reduction in peak
2 demand," that was with regard to how it would
3 affect the electric side of the business?

4 A. Yes.

5 Q. All those things listed under the
6 concepts there were designed to address
7 concepts under the electric side of SDG&E's
8 system, correct?

9 A. That's correct. This study, to my
10 knowledge, didn't look at any of the
11 operational benefits.

12 Q. And for the court reporter, SDG&E is
13 San Diego Gas & Electric, correct?

14 A. Yes, that's correct.

15 Q. So when it identified the annual
16 societal benefits of \$69.8 million, that's
17 what they estimated based on how it would
18 apply to the electric side of the business,
19 correct?

20 A. I believe so.

21 Q. Then it says "Discounted over 20
22 years and adjusted on a per-meter basis for
23 Duke Energy Ohio's size, it equates to
24 \$355 million." Is that per year?

25 A. Well, that would be over the 20

1 years.

2 Q. Is that for Duke's electric side or a
3 combination?

4 A. That's for the electric.

5 Q. So there's nothing on this page that
6 would identify the benefits for the gas side
7 of Duke's business, correct?

8 A. Yes, that's correct.

9 Q. Then the box below that, ConEdison,
10 that's a New York State electric company,
11 correct?

12 A. Yes.

13 Q. So everything they have there is,
14 again, for the electric side of their business
15 only. To the extent that you did a
16 comparative analysis, again, it was just for
17 Duke's electric side, correct?

18 A. Yes, that's correct.

19 Q. Page 9 of this document, this is
20 where we got the 456,000 gas meters and
21 760,000 electric meters, correct?

22 A. Yes.

23 Q. I just wanted to identify that.

24 A. Okay.

25 Q. I think that's all I have for that

1 document. The other document that we sent
2 out, I believe, is a six-page document. And
3 it's identified in the upper right-hand
4 corner, page 1 of 6 through pages 6 of 6. It
5 is an article titled "Designing the Utility of
6 the Future: Duke Energy Takes a Holistic View
7 of Distribution, by Steven M. Brown, editor in
8 chief."

9 A. Yes, and I only show four out of the
10 six pages.

11 Q. The last two pages seem to be
12 e-mailed stuff that really doesn't affect the
13 article itself.

14 A. I think my administrative assistant
15 left those two pages off.

16 Q. So basically we're talking about the
17 first four pages of the document.

18 A. Very good.

19 MR. D'ASCENZO: Mr. Smith, the e-mail
20 that you sent to me does have all six pages.

21 MR. SERIO: You would agree with me,
22 Counsel, that the last two pages really don't
23 affect the article at all?

24 MR. D'ASCENZO: Yes, I would agree
25 with that.

1 MR. SERIO: To make it easier on the
2 record, let's make this a four-page document
3 for the court reporter.

4 BY MR. SERIO:

5 Q. And the bottom of the fourth page
6 says "Utility Automation & Engineering T&D
7 December, 2007." Then it lists the author. I
8 see that as the end of the article. Would you
9 agree with me, Mr. Smith?

10 A. Yes.

11 Q. You're the same Mr. Smith that's
12 quoted in this article, correct?

13 A. I am.

14 Q. Do you recall talking to the reporter
15 about this article?

16 A. Yes.

17 Q. The discussion that you had with the
18 reporter, again, focused on the Utility of the
19 Future on the electric side of the business,
20 correct?

21 A. Yes, that's correct.

22 Q. To the extent that the company --
23 let's see if I can find the paragraph -- I
24 think it would be on page 4 of 6. There's a
25 subheading that says "BPL not Dead Yet at Duke

1 Energy." Do you see that?

2 A. Yes.

3 Q. When you talk about a recent media
4 report, were you referring to an Electric
5 Utility Week article where it talked about
6 Duke moving away from BPL projects?

7 A. I believe that was the publication,
8 but I'm not positive. There were one or two
9 reports that came out, but yes, that's one of
10 them.

11 Q. So would you say, subject to check,
12 it's the September 17, 2007 Electric Utility
13 Week?

14 A. Yes.

15 Q. That article that I have in front of
16 me says Duke is moving away from BPL projects
17 to focus on other grid technology. What
18 you're saying in this article, in Exhibit 2,
19 is that that is not necessarily accurate, and
20 that the company isn't totally abandoning the
21 BPL, but it's trying to still incorporate the
22 BPL into the Utility of the Future, correct?

23 A. Yes, we're making that evaluation.

24 Q. And the company has not made that
25 decision yet; is that correct?

1 A. That's correct.

2 Q. Is there any kind of cost benefit
3 analysis that's going into that decision
4 making?

5 A. Yes, there is.

6 Q. Is that part of the cost benefit
7 analysis that the company did regarding the
8 Utility of the Future in this proceeding?

9 A. Yes, although I don't believe that is
10 in the current cost benefit analysis.

11 Q. So if I go through the cost benefit
12 analysis, I won't see anything that references
13 the BPL system?

14 A. No, you won't.

15 Q. To the extent you say in the article
16 that the company is looking to leverage the
17 existing BPL assets, what you're trying to do
18 there is to use the BPL assets as part of the
19 Utility of the Future infrastructure, correct?

20 A. Yes, we're determining if it's
21 feasible.

22 Q. Is that for the gas side of the
23 business or the electric side of the business?

24 A. It would be for both.

25 Q. To the extent that the company has

1 deployed BPL assets technology to date, do you
2 know if that's been done for electric
3 customers or for gas customers? Do you have a
4 breakdown?

5 A. I think I do have a breakdown, and I
6 don't have it with me. I believe it's been
7 deployed to both type of accounts, where
8 there's electric and gas, and some electric
9 only.

10 Q. Do you know if Duke has any gas-only
11 customers, or is it your understanding that
12 anybody that has natural gas is also a Duke
13 electric customer?

14 A. No, we do have some gas-only
15 customers.

16 Q. Do you know if any of those gas-only
17 customers were included in the BPL that's been
18 put in place so far?

19 A. No, they wouldn't be. If we don't
20 have access to the electric infrastructure,
21 then we couldn't use the BPL technology.

22 Q. So to the extent that you still want
23 to use the BPL technology, it's really
24 contingent on the electric side of the
25 business and not the gas side, correct?

1 A. Well, it's a hybrid. I guess this
2 goes back to how we would use the BPL. We
3 would likely use a fixed radio network to get
4 the meter read from the home. But then it may
5 tie in to the BPL system to bring the data
6 back to the head-in system. It would not go
7 directly to the gas-only customer.

8 THE COURT REPORTER: I don't remember
9 marking this as Exhibit 2. Would you like me
10 to do that now?

11 MR. SERIO: I'm sorry. I thought I
12 did indicate that the article is four pages,
13 page 1 of 6 through 4 of 6. Mark that as
14 Smith Exhibit 2.

15 (Whereupon, Smith Exhibit 2 was
16 marked for identification.)

17 MR. SERIO: Mr. Smith, that's all I
18 have for you.

19 Does the staff have any questions?

20 (There was no response.)

21 MR. SERIO: Mr. Smith, I think your
22 counsel will inform you that you have the
23 opportunity to review the transcript of the
24 deposition. If you have questions about that,
25 he can answer those questions. Otherwise, I

1 appreciate your candor in making this
2 deposition go as quickly as it did. Thank you
3 very much.

4 THE WITNESS: Likewise.

5 MR. D'ASCENZO: Mr. Smith, as
6 counsel, I recommend that we review the
7 deposition. It's your decision, though.

8 THE WITNESS: Yes, I think that would
9 be wise.

10 MR. D'ASCENZO: He will read it then.

11 (The deposition was concluded at 11:32 a.m.)

12 (Signature reserved)

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S I G N A T U R E P A G E

IN RE: BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO
DEPOSITION OF: MATTHEW W. SMITH

I, MATTHEW W. SMITH, do hereby certify that I have
read the foregoing deposition and that the foregoing
transcript is a true and correct record of my testimony.

MATTHEW W. SMITH

Subscribed and sworn to before me this _____ day
of _____, 2008

Notary Public

My commission expires: _____

A M E N D M E N T P A G E

PLEASE DO NOT WRITE WITHIN THE TRANSCRIPT ITSELF.

LIST ANY CORRECTIONS BY PAGE AND LINE NUMBER ON THIS SHEET. IF ADDITIONAL PAGES ARE NECESSARY, PLEASE FURNISH SAME AND ATTACH THEM TO THIS AMENDMENT PAGE.

YOU ARE ALLOWED 10 DAYS WITHIN WHICH TO COMPLETE THE SIGNATURE PAGE AND AMENDMENT PAGE. AFTER COMPLETING THESE PAGES, PLEASE RETURN THEM TO CAIN & CRANE COURT REPORTERS, POST OFFICE BOX 23833, CHARLOTTE, NC 28227.

IN RE: BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO
DEPOSITION OF: MATTHEW W. SMITH

I, MATTHEW W. SMITH, certify that I have read my deposition, which was taken on 2/19/08, and request that the following changes, if any, be made:

Page ____ Line ____

Correction: _____

Page ____ Line ____

Correction: _____

Page ____ Line ____

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Page ____ Line ____

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Page ____ Line ____

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Page ____ Line ____

Correction: _____

MATTHEW W. SMITH / / 08

1 STATE OF NORTH CAROLINA) CERTIFICATE OF TRANSCRIPT
2 COUNTY OF MECKLENBURG)
3

4 I, Colleen J. Cain, Court Reporter and Notary
5 Public, in and for the aforesaid county and state, do
6 hereby certify that the foregoing pages are an accurate
7 transcript of the deposition of MATTHEW W. SMITH, which
8 was taken on behalf of the Ohio Consumers' Counsel by me
9 in machine shorthand and transcribed by computer-aided
10 transcription.

11 I certify that the deponent and parties did
12 not waive the signing of the deposition by the deponent.

13 I further certify that I am not financially
14 interested in the outcome of this action, a relative,
15 employee, attorney or counsel of any of the parties, nor
16 am I a relative or employee of such attorney or counsel.

17

18

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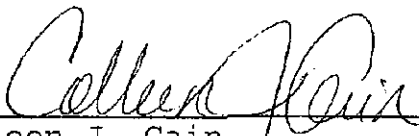
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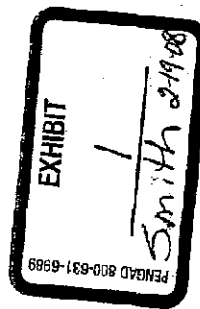
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Colleen J. Cain
Certified Shorthand Reporter
Notary Public No. 19932600068

UTILITY OF THE FUTURE

Public Utilities Commission of Ohio Smart Metering Workshop

December 13, 2007



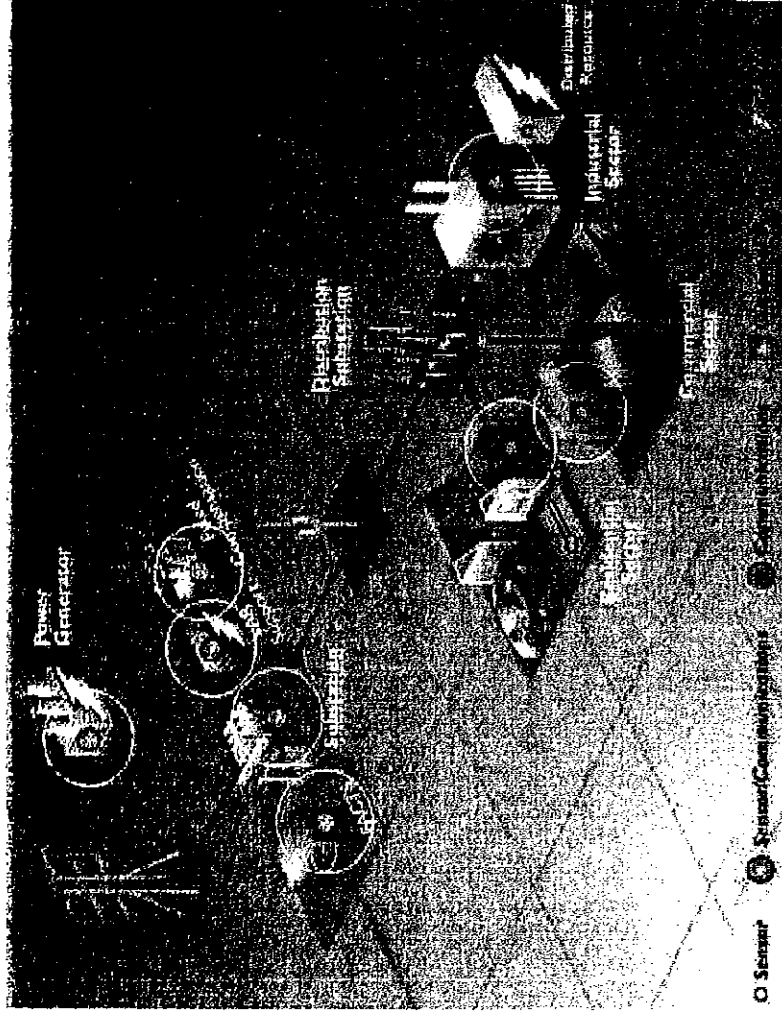
Duke Energy's Utility of the Future Initiative

Vision

Our vision is to transform the operation of our electric power grid and gas distribution network by creating a networked infrastructure capable of delivering and receiving information from intelligent devices distributed across our power and gas system, automating components of the distribution system and leveraging the network for improved operational efficiencies and customer satisfaction.

Definition

Utility of the Future is a comprehensive improvement to our electric and gas delivery system to provide the right information at the right time to the right places to optimize system performance, increase reliability, reduce outages and outage duration, deliver customer benefits, and extend energy efficiency to the fullest extent possible.



Achieving the Digital Grid Vision with Technology

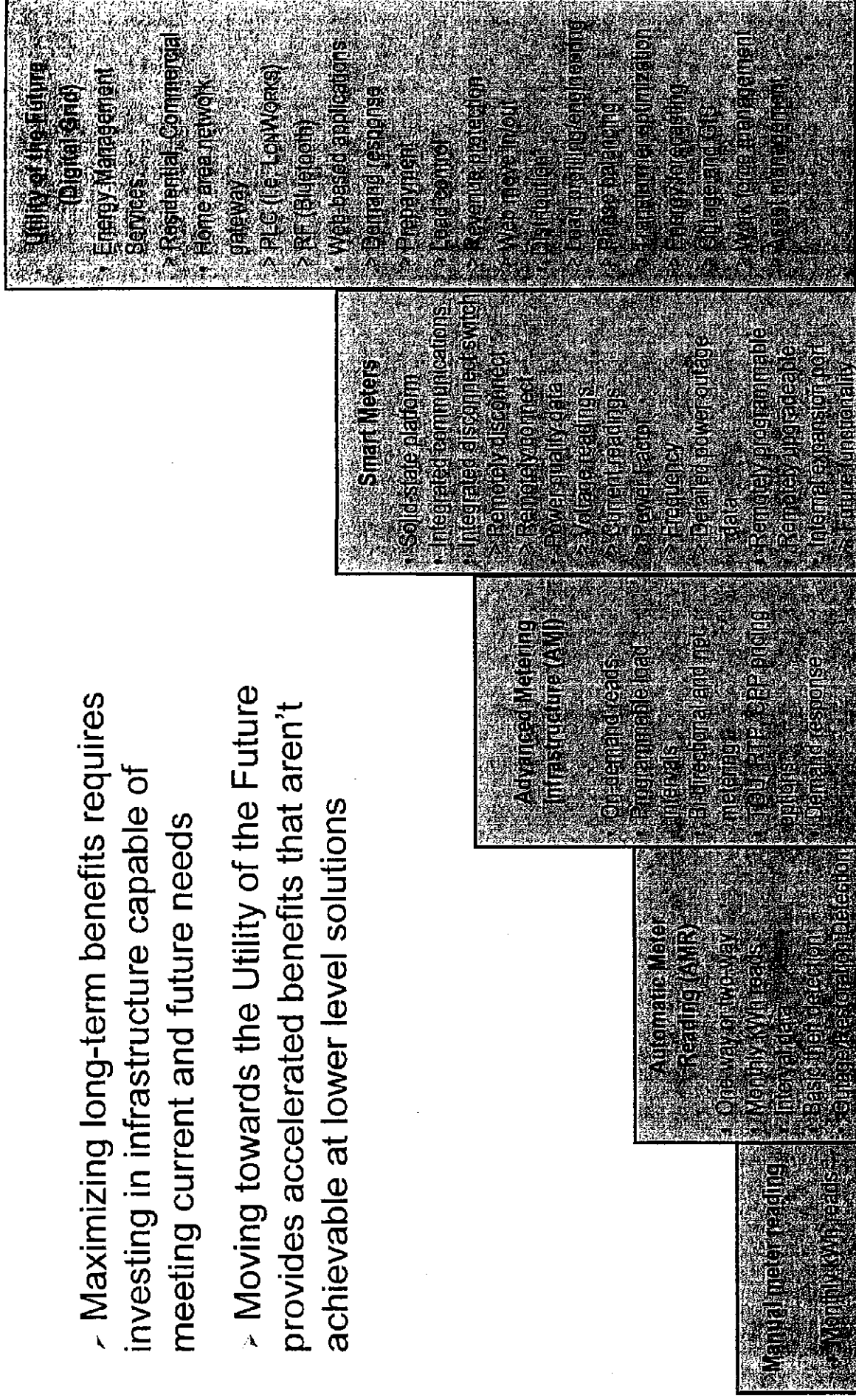
20 th Century Grid	21 st Century Grid
Electromechanical	Digital
One-way communications (if any)	Two-way communications
Built for centralized generation	Accommodates distributed generation
Radial topology	Network topology
Few sensors	Monitors and sensors throughout
"Blind"	Self-monitoring
Manual restoration	Semi-automated restoration and, eventually, self-healing
Prone to failures and blackouts	Adaptive protection and islanding
Manual equipment inspections	Monitor equipment remotely
Emergency decisions by committee and phone	Decision support systems, predictive reliability
Limited control over power flows	Pervasive control systems
Limited price information	Fully available price signals
Few customer choices	Many customer choices

Consider the following:

- What would it cost to read meters daily?
 - Much larger workforce, equipped with vehicles and readers
- Could service be activated (or terminated) within the same business day?
 - Much larger workforce with vehicles
- Can real-time pricing occur?
 - Need to send a price signal and have meters that can read multiple increments
- In home communications are impossible
 - Infrastructure doesn't exist
- Could prepayment plans be established?
 - Execution of turning on/off very burdensome

Utility of the Future: A Forward-looking Solution

- Maximizing long-term benefits requires investing in infrastructure capable of meeting current and future needs
- Moving towards the Utility of the Future provides accelerated benefits that aren't achievable at lower level solutions



UTILITY OF THE FUTURE

Utility of the Future: Building for Future Needs

Interoperability and open Internet Protocol based standards

- Helps prevent future stranded costs
- Enables easier deployment of new technologies
- Allows technology adoption without replacement

Technological Obsolescence

- Stranded assets and costs
- Proprietary technology reduces future options
- Incremental investment to build the digital grid vision after implementing AML is unknown

Enabling the home is an open issue

- Home area networks can exist through the powerline or wireless
- Messages from the back office to the home may need several mediums
- Wired and wireless should be available to communicate into the home
- Communicating exclusively through the meter may limit access to the home network

The Benefits of the Digital Grid - Operations

Metering Reduced meter reading costs; refurbishment, replacement and testing; reduced theft; improved accuracy; fewer unoccupied premises costs; and the ability to diagnose meters remotely

Outage Improvement in outage detection, duration and repair verification

Direct Load Control Peak shaving for residential and commercial loads; decreased reserve generation; reduced emissions

Distribution Reduced capacitor and substation inspection costs; improved VAR management, system voltage control, and continuous voltage monitoring; more accurate asset management; enhanced system fine-tuning

Miscellaneous Improved call center efficiency; fewer billing exceptions; enhanced safety precautions; more pre-payment billing plans offered; reduced vehicle costs

The Benefits of the Digital Grid - Customers

Point of Service

Introduction of remote initiation, transfer and termination of service; increased speed of automatic disconnection and reconnection; improvement in restoration speed

Tariff Optionality

Increase in the customer choice for rate plans (e.g., prepaid plans); individualized programs and additional payment conveniences (eCommerce); enable time of use and/or critical peak pricing rate offerings

Energy Services Offerings

Introduction of energy efficiency programs and energy savings for residential and nonresidential customers; ability to offer load control initiatives

Service Improvements

Elimination of meter access issues and estimated meter reads; increased power quality; more reliable and better power quality

Additional Benefits

Operational benefits also accrue to customers: societal benefits enabled by infrastructure, increased customer satisfaction, upgrading of antiquated meters and equipment, enhancing safety precautions

The Benefits of the Digital Grid - Societal

Concepts evaluated in the SAIC & EPIC study

- Reduction in peak demand,
- Power quality, reliability, and system availability and capacity improvement due to improved power flow,
- Increased capital investment efficiency due to tighter design limits and optimized use of grid assets,
- Environmental benefits gained by increased asset utilization and reduced peak demand,
- Reduction in restoration time and reduced operations and maintenance due to predictive analytics and self-healing attribute of the grid,
- Other benefits due to self-diagnosing and self-healing,
- Increased safety for employees and customers,
- Reduction in congestion cost, blackout probability, and forced outages/interruptions,
- Increased integration of distributed generation resources and higher capacity utilization, security and tolerance to attacks/natural disasters,
- Job creation and increased gross regional product,
- Tax savings for the utility from a depreciation increase

Legend: Quantified by Duke Energy Partially quantified by Duke Energy Not quantified by Duke Energy

Comparative Financials

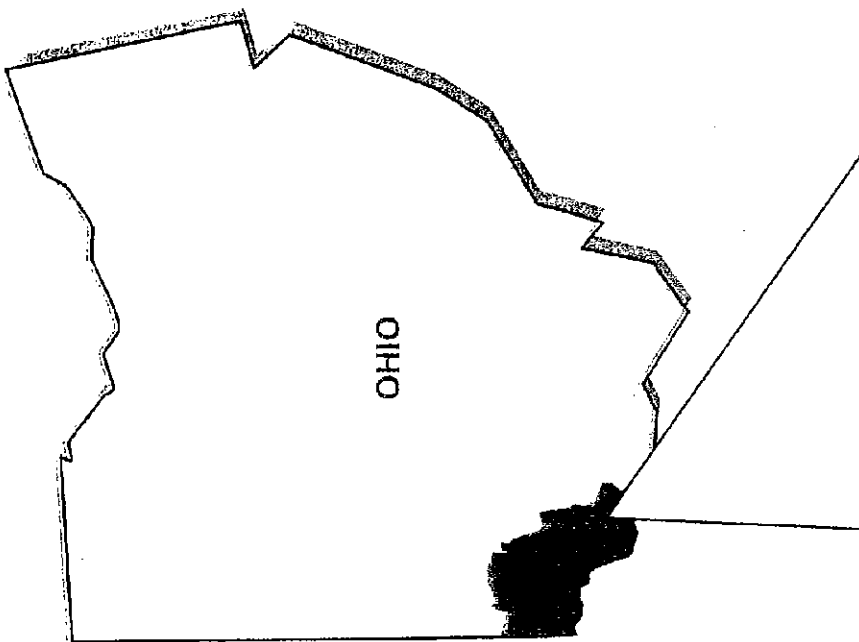
SAIC study for EPIC (SDG&E system)

- Annual Societal Benefits: \$69.8MM
- Discounted over 20-years and adjusted on a per-meter basis for Duke Energy Ohio's size, it equates to \$355MM

ConEdison – New York AMI Filing

- Societal Benefits(15-yr PV): \$261MM
- Adjusted for 20-year present value and a per-meter basis for Duke Energy Ohio's size, it equates to \$75MM

Duke Energy - Ohio



Duke Energy - Ohio Overview

- Number of Meters: 1,216,000
- 456,000 Gas Meters
 - 760,000 Electric Meters
- Rollout: 5 year straight line
 - Total Cost: \$316 – 341 Million
 - Cost per Meter: \$260 - \$280
 - NPV: (\$55) – (\$70) Million
 - Project Life Cycle: 20 years

Cincinnati, OH

The Cincinnati deployment will configure meters (Gas and Electric) along with communication systems, both meshed wireless and digital cellular.

Distribution assets will also be connected to the network and back office integration systems. Customers will be connected to an online portal where energy information gathered from the system can be delivered to shape energy usage.

UTILITY OF THE FUTURE

Duke Energy's Utility of the Future Initiative

Investing in infrastructure will benefit customers into the future

Achieving operational, customer and societal benefits requires investment in technology

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Designing the Utility of the Future: Duke Energy Takes a Holistic View of Distribution

By Steven M. Brown, editor in chief



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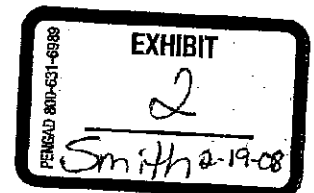
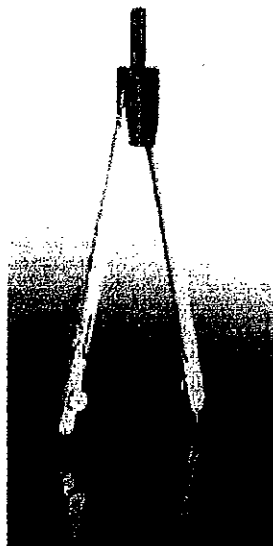
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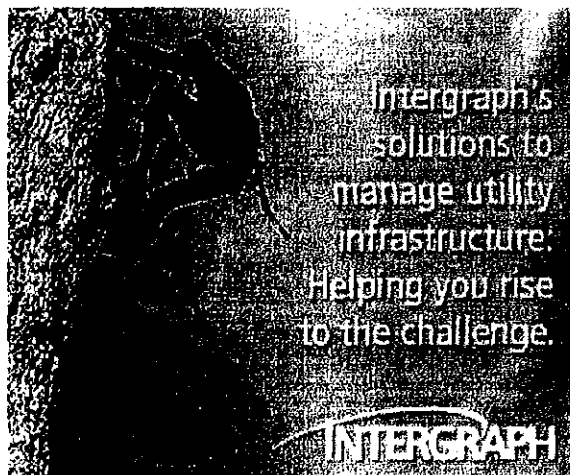
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A number of utilities are beginning to take what might best be termed a "holistic" approach to distribution system improvement. Rather than piecemeal, siloed projects focusing on one specific area—like advanced metering, distribution automation or substation automation—these utilities are undertaking broader visions. They're looking at how technology implementations in one part of the distribution system can interact with and work toward the betterment of enhancements in other parts of the distribution system and the power system as a whole.



Kansas City Power & Light is a prime example of this philosophy of holistic system

enhancement with its "Comprehensive Energy Plan" (reported on in the September 2007 issue of this magazine; see "Issue Archives" at www.utility-automation.com). KCP&L's Comprehensive Energy Plan was designed to meet the growing need for energy in the KCP&L service area. The plan includes proposals for new coal-fired and wind-fueled generation, investment in demand response programs, and six projects related to distribution automation. Also following this "holistic" approach to system improvement, two major Texas utilities, CenterPoint Energy Houston Electric and Oncor (formerly TXU Electric Delivery), are putting in broadband over powerline networks that promise to power a host of intelligent distribution system applications, including advanced metering, distribution automation and outage restoration.



Add to the list of utilities taking broad approaches to distribution system improvement Duke Energy with its "Utility of the Future" project.

Duke's Utility of the Future initiative spans the entire distribution system and encompasses advanced metering, distribution automation, substation automation and even the integration of small-scale distributed generation. Duke is in the early stages of this initiative, which will culminate in a five- to seven-year build-out across the company's service territory at a cost of just under a billion dollars.

Duke Energy has a service territory of approximately 47,000 square miles and delivers electric power to nearly 4 million customers in the Carolinas, Ohio, Kentucky and Indiana. The company delivers power to those customers over a network that consists of 20,000 miles of transmission lines and 106,000 miles of distribution lines. The primary focus of Duke's Utility of the Future initiative is to build a networked infrastructure of intelligent devices on those 106,000 miles of distribution lines.

"What we envision is combining our new and existing power delivery assets—meters, capacitors, line sensors, substations, everything that's on our distribution grid—and connecting those with sensing, monitoring and communication devices, creating a network to retrieve information from and deliver information to those assets," said Matt Smith, Duke's director of technology development. Smith also serves as director of the Utility of the Future initiative.

"For our end state, we envision a network of devices interacting to increase system efficiency, both for us and for our customers," he said.

Unlike much of the current wave of "smart grid" programs, Duke's Utility of the Future plan doesn't necessarily have the customer meter as its focal point. While advanced metering is an integral part of the Utility of the Future plan and several of the pilot programs associated with it, Smith said Duke is looking at the meter as one of many endpoints that can serve as a source of distribution system information.

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"It's just like we look at our own company's internal computer network," Smith said. "Every computer or printer on the network is an endpoint. They all serve different purposes, but one doesn't necessarily provide information that's more important than another."

Smith does acknowledge that smart meters will provide Duke Energy with important information about how the utility's customers use energy. Pushing energy efficiency initiatives out to customers—something Smith refers to as "universal access to energy efficiency"—is one of the main goals of the Utility of the Future effort. Smith said that, currently, the meter provides the best interface between Duke Energy and its customers, but, in the future, this interface could move either closer to the utility or closer to the customer. "It may be devices in the home that we interact with," he said. "Or it may move further into our system. A wireless communication device may sit at the transformer and communicate inside the home without going through the meter."

"We're pursuing a concept that would be a sort of dashboard in the home where the customer would have direct access to information about their usage and what's happening on their side of the meter," Smith said.

He noted that the information Duke currently provides its electric customers is identical to the type of information most electric utilities provide: a rearward view of how much energy a customer has used on a monthly basis for the past year. But, taking a retrospective look at energy usage does little to empower consumers to manage their usage in the here and now.

"What we want to do is increase the amount of information, give them more granular insight, whether it's on an hourly basis or every 15 minutes, some increment where they can see with more clarity what's happening (with their energy usage)," Smith said. He added that he would like to see this energy usage data driven down to the device level so customers can see, for instance, what their top five energy consuming devices are. He also wants to be able to deliver this information in near-real-time, as opposed to the current method of providing historical information.

"Our focus is not just the 'smart grid' but how we enable our customers to participate in energy efficiency."

Besides promoting energy efficiency, Smith said Duke may also be able to offer such metering-related programs as prepaid metering and remote connect/disconnect to customers in the future. (See pages 40-44 of this issue for more information on remote connect/disconnect programs.) He also noted that power reliability, power quality and outage restoration are other areas that will benefit from the Utility of the Future projects related to metering.

Moving back onto the Duke system from the customer meter, the Utility of the Future program will also include such distribution automation functionality as line sectionalizing so Duke is better able to isolate faults on its system and improve power reliability. Substation automation and communication with intelligent devices inside the substation also fall under the Utility of the Future umbrella.

"As we add new substations or upgrade existing substations, we're making sure we put in devices that are capable of connecting to a network, that they have standard interfaces, like an Ethernet-type connection. And we're focusing on interfacing with the right communication systems."

Therein lies one of the main challenges Smith believes Duke will encounter as they move forward with the Utility of the Future initiative: technology selection.

"We're looking for the best combination of technologies," Smith said. "We don't think one technology will work across all our territories. We believe we'll need a combination of both communications and endpoint technologies. We're not seeing one vendor who can come in and meet all our needs from the substation to the customer home in every service territory. Our challenge isn't so much finding technology that works as it is finding the right combination of technologies that will work."

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Smith noted that the proprietary nature of many vendor offerings also pose a problem. Open standards, Smith says, are crucial to Duke's vision.

"Our number one obstacle is interoperability of devices, without a doubt. What we see in the vendor community are isolated products. They generally offer a product that will work across our system but not across other vendors."

Currently, Smith said Duke is in the process of determining exactly what communication and endpoint technologies they need in place to arrive at the Utility of the Future. He said this technology evaluation will continue through the second quarter of 2008. Starting at the end of 2008, Duke should be ready to make decisions on exactly how they will deploy this new technology. After that, Smith envisions a five- to seven-year build-out across Duke's service territories, with the bulk of the build-out coming in years one through five.

Smith said Duke's capital plan over the next five years for the Utility of the Future initiative is estimated at \$975 million.

BPL not Dead Yet at Duke Energy

Matt Smith, Duke Energy's director of technology development and director of the company's Utility of the Future initiative, says a recent media report that the utility is abandoning efforts in broadband over powerline (BPL) communications technology isn't entirely accurate. He said BPL as a communications medium, though not without its shortcomings, is still in the mix as the company looks to build a broad network of intelligent devices throughout its distribution system.

Duke energy currently has broadband over powerline technology deployed in Cincinnati, Ohio, and Charlotte, N.C.




"We're finding that the technology (BPL) is efficient in delivering information (in the form of broadband Internet access) to the home. We've had positive response from customers," Smith said. "On the utility side of the meter, we're finding that the equipment is fairly expensive at this point and that we need more of it than we anticipated."

Smith said that in the early stages of Duke's evaluation of BPL, there was an assumption that BPL couplers could be placed at every other transformer or every other customer drop. (A coupler is a device that allows data on power lines to bypasses the transformer to ensure optimal strength of the BPL signal.) "We're finding we need more BPL equipment than we had anticipated, and so the cost-benefit has been challenging," he said.

Smith said that rather than abandoning BPL, Duke will look to leverage existing BPL assets to interface with the intelligent devices the company is installing as part of its Utility of the Future effort. While he said Duke is not currently installing new BPL equipment to further the Utility of the Future project, the company is trying to determine whether there is a cost-effective way to use the BPL assets already in place to form at least part of the communications network that will interface with intelligent devices such as meters, transformers, line sensors and equipment within substations.

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