

BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA  
COLUMBIA, SOUTH CAROLINA

PROCEEDING #16-11539

JUNE 23, 2016

10:33 A.M.

ALLOWABLE EX PARTE BRIEFING - 2016-240-E

DUKE ENERGY CAROLINAS - Request for Allowable Ex Parte Briefing Regarding  
Deployment of Advanced Metering Infrastructure in South Carolina

TRANSCRIPT OF  
PROCEEDINGS

ALLOWABLE  
EX PARTE BRIEFING

**COMMISSION MEMBERS PRESENT:** Nikiya M. 'Nikki' HALL,  
*Chairman*; Swain E. WHITFIELD, *Vice Chairman*; and  
COMMISSIONERS Elliott F. ELAM, JR., Comer H. 'Randy'  
RANDALL, and Elizabeth B. 'Lib' FLEMING, and G. O'Neal  
HAMILTON

ADVISOR TO COMMISSION: Joseph Melchers, Esq.  
General Counsel

**STAFF:** F. David Butler, Senior Counsel; Randall Dong, Esq., and  
David W. Stark, III, Esq., Legal Staff; Douglas Pratt, Lynn  
Ballentine, and Tom Ellison, Advisory Staff; Jo Elizabeth M.  
Wheat, CVR-CM/M-GNSC, Court Reporter; and Calvin Woods, Hearing  
Room Assistant

**APPEARANCES:**

**HEATHER SHIRLEY SMITH, ESQUIRE, and FRANK  
R. ELLERBE, III, ESQUIRE,** together with **ALEXANDER  
'SASHA' WEINTRAUB** [Sr. VP, Customer Solutions / Duke  
Energy], **JOSEPH R. THOMAS** [Director, Enhanced Basic  
Services / Duke Energy], and **JUSTIN BROWN** [Manager, Grid  
Solutions Planning & Regulatory Support / Duke Energy],  
representing and presenting for **DUKE ENERGY CAROLINAS**

**JEFFREY M. NELSON, ESQUIRE,** representing the  
**OFFICE OF REGULATORY STAFF**

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Please note the following inclusions/attachments to the record:

- Presentation Slides (PDF)

Please also note: For identification of additional referenced materials and/or links for same, if any, please see Certification correspondence filed by the Office of Regulatory Staff.

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**P R O C E E D I N G S**

**CHAIRMAN HALL:** Thank you. Be seated. Good morning, everyone. We'll call this hearing to order and ask Mr. Melchers to read the Docket, please.

**MR. MELCHERS:** Thank you, Madam Chairman. Commissioners, we are here pursuant to a Request for Allowable Ex Parte Communication Briefing. The party requesting the briefing is Duke Energy Carolinas, LLC, and the briefing is scheduled for today, June 23rd, here in the Commission hearing room.

Our subject matter to be discussed at this briefing is: Duke Energy Carolinas' Deployment of Advanced Metering Infrastructure in South Carolina.

Thank you, Madam Chairman.

**CHAIRMAN HALL:** Thank you.  
And who appears for Duke Energy?

**MS. SMITH:** Heather Shirley Smith, on behalf of Duke Energy Carolinas.

**CHAIRMAN HALL:** Okay, thank you.

And Mr. Nelson, from ORS, you want to give us your introduction?

**MR. NELSON:** I will, Madam Chair. Thank you, very much. Y'all have heard this a couple of times

1           now, so I'm going to cut it a little bit shorter,  
2           maybe, than what we've said before.

3           I would like to remind the Commission and the  
4           parties here today that the issue which has been  
5           noticed in this proceeding today is "Duke Energy's  
6           Deployment of Advanced Metering Infrastructure in  
7           South Carolina." I, therefore, ask the parties, as  
8           well as the Commission and staff, to limit their  
9           discussion and any questions today to that topic,  
10          specifically.

11          I would ask that the parties and the  
12          Commission staff and Commissioners attempt to  
13          refrain from asking any questions or asking for any  
14          documents or anything that haven't been provided  
15          already in the materials that Duke has provided for  
16          the briefing today, and that's really just – if we  
17          can stay away from that, it obviously makes my job,  
18          as well as Heather's job, a lot easier when we have  
19          to put the packet together to forward.

20          Also, the parties are to refrain, by statute,  
21          from asking the Commission for any decision or  
22          opinions regarding any matters in this allowable ex  
23          parte proceeding, and as well as the Commission is  
24          prohibited from providing any such opinions in the  
25          proceeding today.

1           For everyone that's here today, I'd like to  
2           remind them that, when you came in this morning,  
3           you should have signed in at the desk, right back  
4           here [indicating], and you should've picked up a  
5           form back there, as well. I would ask that you  
6           please read that form, and sign that form, and turn  
7           it back in before you leave today, as that also has  
8           to be part of the allowable ex parte package.

9           That's all I have, Madam Chairman. Thank you,  
10          very much.

11          **CHAIRMAN HALL:** Okay. Thank you, Mr. Nelson.  
12          Ms. Smith?

13          **MS. SMITH:** Good morning, Commissioners. We  
14          just wanted to introduce our speakers for you,  
15          briefly.

16          Sasha Weintraub is our senior vice president  
17          of Customer Solutions for Duke Energy. He's  
18          responsible for our customer-focused products and  
19          services. His responsibilities include retail  
20          programs, enhanced basic services, rate design,  
21          customer regulatory strategy, and data analytics.  
22          He assumed his current position with Duke in  
23          October 2015, but he's been with the company since  
24          1999.

25          Justin Brown is our manager of Planning and

1 Regulatory Support within the Grid Solutions Team  
2 for Duke Energy. His work focuses on grid  
3 modernization planning. He's been with the company  
4 since 2008.

5 Joe Thomas serves as our director of Enhanced  
6 Basic Services for Duke Energy. Joe's work focuses  
7 on AMI deployment and AMI-based solutions, such as  
8 Pay As You Go and usage alerts. Joe has been with  
9 Duke since 2010.

10 And I know they're looking forward to  
11 presenting to you today, and with that, I'll turn  
12 it over to Sasha.

13 **MR. SASHA WEINTRAUB [Duke Energy]:** Good  
14 morning, Commissioners.

15 [Reference: Presentation Slide 2]

16 So we're going to go through, today, a  
17 presentation to discuss the benefits with our  
18 advanced metering infrastructure deployment, or  
19 smart meter deployment.

20 So, here's a little briefing of what we'll be  
21 talking about today: the different types of  
22 metering solutions, so a little bit around the old  
23 meter we have today, and the one we'll be  
24 transitioning to with our deployment; we'll be  
25 talking about the technology of the smart meter,

1 the vendor of the smart meter; we'll also discuss,  
2 then, the benefits for the customer, and products  
3 and services that we will be rolling out with the  
4 AMI deployment in order to improve the choice,  
5 convenience, and control of our customers; we'll  
6 discuss the deployment timeline; and then we'll get  
7 into communications with the customer during  
8 deployment and what a customer can expect while  
9 we're deploying on their home or business, and  
10 we'll also address some concerns that customers  
11 will have and how we'll go about educating  
12 customers to mitigate their concerns.

13 [Reference: Presentation Slide 3]

14 **MR. JOSEPH THOMAS [Duke Energy]:** Good  
15 morning. Thank you. So, what we wanted to jump  
16 through here on this slide was to talk through the  
17 current-state metering solution across Duke Energy  
18 Carolinas' South Carolina jurisdiction, which is  
19 represented on this slide on the left. So you can  
20 see there's just over 493,000 AMR solutions – and  
21 by "AMR," we mean a drive-by solution, so a truck  
22 is driving by monthly to collect those meter reads.

23 And then on the right-hand side is what we're  
24 here to talk about today, is the AMI or automated  
25 metering infrastructure solution. And you can see



1           that the meters are pulsing an RF signal with meter  
2           data, and those meters are talking to meters. So  
3           you're building a mesh network by connecting those  
4           meters together. At some point through that  
5           network design, the meter path is getting back to a  
6           connected grid router, which is the device that's  
7           used to communicate with the back office at Duke.  
8           And you can see that connected grid router in the  
9           middle of that straight line.

10           In the bottom section is the 4G direct-connect  
11           solution. And that's a less used solution in the  
12           total infrastructure, but it serves a strong  
13           purpose in reaching customers where there's not a  
14           dense enough network to communicate strongly. So  
15           instead of designing a mesh network around those,  
16           which may not be the most effective way, the 4G  
17           direct connect allows a direct connection from the  
18           meter to the back office.

19                           [Reference: Presentation Slide 5]

20           On Slide 5, wanted to talk through the process  
21           and the vendor that's been chosen for our AMI  
22           solutions. So, in 2014, we performed an RFQ  
23           process to select a vendor, and at that time and  
24           currently Itron was the vendor of choice. Itron is  
25           located in Oconee, South Carolina. You know,

1           they've got roughly 615 employees in that location,  
2           and a rather large facility that's represented in  
3           the bottom left. Itron's a proven leader across  
4           the industry, with a number of deployments across  
5           the US.

6                               [Reference: Presentation Slide 6]

7                       **MR. SASHA WEINTRAUB [Duke Energy]:** So as we  
8           deploy these meters, they'll be manufactured at the  
9           facility in Oconee, South Carolina.

10                       So that was the meter, itself, but now I'd  
11           like to give you – discuss with you the benefits to  
12           the customer. So with advanced metering  
13           infrastructure, we're now able to deploy value to  
14           the customer that we weren't able to do before with  
15           just the drive-by meters. And I'm going to hit  
16           these boxes, briefly, just to tell you what some of  
17           those benefits are in themes.

18                       We'll be able to do better analytics, so, in  
19           other words, we'll see, now, data that has 15-  
20           minute intervals versus just "Here's how much  
21           energy someone used in a month." So you're going  
22           to see how much was used in the morning and the  
23           afternoon, across the hour.

24                       We'll be able to optimize storm restoration.  
25           We can ping to know is that home actually on or off

1 and should we send a truck there.

2 We'll be able to prevent high-bill surprises,  
3 avoid disconnect and reconnect fees, with some of  
4 the programs that we're offering.

5 A lot more choice. You know, again, what I'm  
6 going to share with you is the programs that we're  
7 developing where customers will now have choice to  
8 have a different experience with Duke Energy.  
9 We'll be able to also have easier diagnosis of  
10 power-quality problems. A lot of times we'll get  
11 phone calls from customers; we'll be able to very  
12 quickly understand, is it in front of the meter, or  
13 behind the meter. In other words, is this  
14 something that's in their house or something on our  
15 system that we can troubleshoot much more quickly  
16 with the customer.

17 Increased convenience, increased control.  
18 And, again, transparency. A customer will be able  
19 to see their usage much more – with much more  
20 transparency than just on a bill and here's how  
21 many kilowatt-hours they used that we're asking  
22 them to pay for.

23 [Reference: Presentation Slide 7]

24 The next slide, then – so, those are the  
25 themes that we're incorporating, creating these

1 values. I now would like to walk you through five  
2 specific programs that we plan to deploy with the  
3 AMI deployment. And these are systems that, again,  
4 are designed to give our customers choice,  
5 convenience, control, and transparency. And I'll  
6 go through each one of these on a specific page,  
7 but just to lay them out here, they are: the  
8 program Pay As You Go, where someone prepays their  
9 bill; someone gets to pick their own due date, so  
10 better timing for their financial situation with  
11 when they would like to pay the bill with Duke  
12 Energy; we're going to be deploying bill estimators  
13 or usage alerts, to give people alerts when they're  
14 approaching a certain threshold of dollar amount,  
15 so that they can be aware for their budget; we're  
16 working on outage notification, a much different  
17 scenario with outages that I'll get into; and then  
18 a smart meter usage app. With the smart meter now  
19 comes the use of apps on your phone or on a mobile  
20 device where, again, you can see much more real-  
21 time usage and, again, things that really impact  
22 the customer's behavior, or allows us to build  
23 programs to impact customers' behavior.

24 [Reference: Presentation Slide 8]

25 So let me start out with the Pay As You Go

1 pilot. We've deployed this as a pilot, as you  
2 know, and we've come and talked to you about this  
3 before. So this is a pilot that we have that we  
4 are now opening up through all of our current  
5 95,000 customers that have AMI meters deployed, in  
6 South Carolina for DEC. So this is a program where  
7 a customer will prepay; they'll put a certain  
8 amount of dollars down, and then every day we will  
9 tell the customer how many dollars they have left  
10 on their account with their usage. And we can  
11 provide them notification via email or text or a  
12 phone call. And it's a much more convenient way  
13 for a customer to pay. The alternative is for  
14 someone who opens up an account with Duke Energy  
15 might be to put down a deposit, and so we are  
16 realizing that this is a choice for our customers  
17 to have, to either put down a deposit or be on a  
18 prepay program. We're also finding that customers  
19 who are on a budget – maybe retirees – might prefer  
20 to be on a prepay program and pay it down. So we  
21 have this deployed as a pilot. We have roughly 200  
22 customers signed up. We're working through, I'll  
23 call it, the kinks of that pilot, and we look  
24 forward to deploying this for all of our customers  
25 as AMI is deployed.

6/23/16

1           We have a couple of testimonials from our  
2           customers on this pilot; I just want to hit on  
3           them. "It helped me monitor my energy usage." "It  
4           is easy to use and I have a much better sense of my  
5           power usage patterns." "I was able to make changes  
6           to how we live and actually see the power bill go  
7           down." So, again, because of this prepay program,  
8           you're seeing what you're actually – how much your  
9           usage is affecting your dollar amount, and we are  
10          now working to provide tips in that program, as  
11          well. So, as the dollars drop down, we are also  
12          now deploying some energy efficiency tips to say,  
13          "Hey, here's an opportunity for you to maybe  
14          stretch your dollars a little bit longer." So,  
15          again, an opportunity to continue to make the  
16          customer aware and have them make a different  
17          choice at their convenience.

18                           [Reference: Presentation Slide 9]

19          The next project that we are working on is  
20          Pick Your Own Due Date. So this is where a  
21          customer will be able to pick the date that they  
22          would like to pay their bill. We find this to be a  
23          concern for some of our customers. We have  
24          customers who call in, asking for two- or three-day  
25          extensions just to better time up with their check

1 or their financial situation. So this is a program  
2 where a customer will be allowed to pick the date  
3 that they would like to pay, and have that in sync  
4 with their financial situation.

5 We know that this program is a big satisfier  
6 for customers. JD Power will say that, from the  
7 billing and payment aspect of a customer's  
8 interaction with a utility, being able to pick your  
9 own due date is the number one satisfier a customer  
10 can have in interacting with a company. So we look  
11 forward to giving that opportunity for customers  
12 to, again, have that convenience and control of  
13 when they would like to pay their bill with Duke  
14 Energy.

15 [Reference: Presentation Slide 10]

16 The next one to talk about is High Bill  
17 Alerts. So on this slide, I want to give you what  
18 we currently are doing and where we are going to be  
19 going with AMI meters.

20 So, today, we have High Bill Alerts that we've  
21 developed – they've been out for almost a year –  
22 where, in the middle of the month, we're looking at  
23 the weather pattern for the next few weeks in the  
24 service territory and we're doing some analytics to  
25 understand, is a customer sensitive to weather.

1           So, to give you a situation like, right now, we  
2           know it's going to be hotter. We're doing some  
3           analytics in the middle of the month to say – to  
4           determine the probability of a customer having a  
5           higher bill because of weather, and we're giving  
6           people alerts mid-cycle to say, "There should be a  
7           high bill coming; you should plan accordingly."  
8           And we're sending out those bills to all of our  
9           customers today – but, again, it's kind of a  
10          predictive tool that's really based upon weather  
11          usage, and customers like that. But there's a  
12          better solution with AMI deployment.

13                 With AMI deployment, we plan on developing an  
14                 alert system very similar to what many of us have  
15                 with our data plans, where, when you reach a  
16                 certain threshold – 75 percent of your data plan –  
17                 you get a message from your carrier and you become  
18                 aware of that. This is the same program that we'll  
19                 be developing, where, based upon a customer-defined  
20                 threshold – and it could be an amount, say \$100; it  
21                 could be last month's bill amount – as a customer's  
22                 usage on a dollar amount approaches that threshold,  
23                 we will give them an alert saying, "You're within  
24                 75 percent of last month's budget"; "You're within  
25                 90 percent," and, again, giving them an alert and

1 an awareness of their usage, in order for them to  
2 make, possibly, different choices, or to budget as  
3 the bill is forecasted to be. A much more focused  
4 dollar amount, because we are reading their meter  
5 every day, and it allows us to be much more focused  
6 with how close are they coming to that threshold  
7 and give them that alert.

8 [Reference: Presentation Slide 11]

9 The next solution that we'll be working on –  
10 again, we have a current-state offering and one  
11 with AMI. Let me just touch upon the current-state  
12 offering. We now have a proactive outage  
13 communication system where, if you have an outage  
14 and you call in an outage to us, we know where your  
15 meter is and where that meter is tied into our  
16 system. We are then able to determine if there are  
17 others around you that we think have an outage, and  
18 we send a text to those others that are matched to  
19 that same circuit or that same transformer as you  
20 are, and we will ask our customers, "Are you having  
21 an outage, or not?" And once they type in "Yes,"  
22 we then get them information, via text or email or  
23 phone, to make them aware of that outage. So we  
24 will tell them the cause the outage, the estimated  
25 time of restoration, has a crew been dispatched,

1           the number of other customers that are out. Again,  
2           a way of keeping customers informed of the outage  
3           on a very proactive basis, which is what we've  
4           currently deployed.

5                         With AMI, the AMI technology has the  
6           capability of the meter telling us they're out.  
7           It's called "last gasp." So when the meter loses  
8           power, it will send a signal back to us saying that  
9           "I've lost power." So we're working on a solution  
10          and there's a vision of never having our customers  
11          have to call us to tell us that they're out. The  
12          meter themselves will tell us that it's out. And  
13          within a certain period of time, we want to work  
14          upon a scenario where the customer is informed that  
15          we know there's an outage, we've dispatched crews,  
16          and all of it is automatic and not requiring anyone  
17          to call us, because we know that meter will tell us  
18          it has lost power. Again, with the current  
19          solution, someone has to call us to say that  
20          they've lost power, because we really don't have  
21          that type of granularity like the smart meter will  
22          provide. So that's a vision that we're working  
23          towards with this AMI deployment.

24                                 [Reference: Presentation Slide 12]

25                                 My next product I want to share with you is

1           the Smart Energy Usage app. So, the dial that you  
2           see on the left of this screen is the real-time  
3           usage at your meter. So, what the app does – and  
4           all of us here, Justin, Joe, and I, all have this  
5           at our homes – it literally is showing your meter  
6           in real time on your phone. And it is so granular  
7           that, when my daughter turns on her lights, you'll  
8           see the spike in the meter. I can show today – I  
9           can show you my coffee machine turning on in the  
10          morning; I can show you the spike in that. And it  
11          definitely is an opportunity, then, to change  
12          people's behavior.

13                 I tell the story that I was at work on the  
14          second day I got this, and I saw a big spike – I  
15          was looking at it, and it spiked very high, and I  
16          called home and I said, "What just happened?" And  
17          my wife said, "Really? You're gonna call me every  
18          time I do the laundry?"

19                         [Laughter]

20                 Because you see that type of granularity.  
21          What it did, to me, though, it made me aware of how  
22          much laundry really uses in energy usage. So next  
23          time, when my daughter was filling up the laundry  
24          machine, it was half-full and I said, "Sweetie, go  
25          grab your sister's laundry and fill that up,

1           because we're not gonna have a half-load use of  
2           laundry." So it really gives you a much more real-  
3           time granularity into your usage.

4           The new version of this is going to be color-  
5           coded. You'll see the HVAC. Those spikes that you  
6           see in the wheel is going to be your air  
7           conditioner turning on or off, so it will give you  
8           a better feel for your air-conditioner usage. This  
9           solution, this vendor that we're working with, is  
10          in the process of integrating sensors on  
11          refrigerators, so you'll be able to see your  
12          refrigerator usage in the spike color-coded as  
13          blue. They're working on a solution where if your  
14          compressor, your refrigerator compressor, is on for  
15          too long that they will send you an alert, and what  
16          that means is, most likely, your refrigerator door  
17          is ajar, and it will send you an alert saying, "Go  
18          check it"; you probably left it open. So that's  
19          the type of solutions that can come when you see  
20          this real-time granularity at the home.

21          The one on the right is a solution that we're  
22          also working with, another pilot that we're going  
23          to be deploying, where, again, using load  
24          disaggregation – so, in other words, knowing what  
25          the signal in the meter is telling it is – it can





1 mesh solution with the 4G option for the remote  
2 meters. This encompasses just short of 500,000  
3 meters, and is over a relatively quick timeline, so  
4 it's a – we're proposing an August start, with a  
5 completion in the summer of 2017.

6 [Reference: Presentation Slide 15]

7 So, one of the things that we wanted to walk  
8 through on the next slide is, as we're working  
9 through that deployment process, what are we doing  
10 to communicate with the customer, so they're more  
11 aware of why we're at their premise<sub>[sic]</sub> and they're  
12 expecting us to be there for these meter exchanges.  
13 As we've had an AMR solution for over a decade,  
14 we're able – they're not used to seeing us there,  
15 for any reason, so we want to make them aware of  
16 the purpose. And this kind of lays out what's that  
17 process of communication.

18 We really have three strong touch points that  
19 we'll walk through, starting with a postcard  
20 notification, door hangers, and then finally with a  
21 certification letter that we'll walk through on  
22 these next slides.

23 [Reference: Presentation Slide 16]

24 So if you jump to Slide 15, this is a visual –  
25 oh, 16, sorry. This is a visual example of what

1           that postcard looks like. So this is mailed out to  
2           the customer two weeks prior to their scheduled  
3           meter exchange, and it's communicating to them what  
4           our plan is, what we're going to be there for and  
5           what to expect. What we put on here, also, is a  
6           landing page, a webpage that they can navigate to  
7           if they'd like to learn more about the smart AMI  
8           deployment.

9           So after that two-week period, as we visit the  
10          premise to do the meter exchange, we leave one of  
11          two door hangers –

12                        [Reference: Presentation Slide 17]

13          – which are represented on Slide 17. And what  
14          this is showing is just a successful completion  
15          notification, so to say, "We were at your premise.  
16          We exchanged your meter and everything was  
17          successful." And then what you're seeing on the  
18          right is in the case that we're unsuccessful: There  
19          was either an issue with being able to exchange the  
20          meter, we weren't able to access it, et cetera.  
21          And there's an 800 number included on this  
22          notification on the door hanger for the customer to  
23          contact. That is not the normal 800 customer call  
24          center number; it's a direct line, specific for the  
25          AMI deployment.

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[Reference: Presentation Slide 18]

And then, finally, as we've communicated to the customer, we've gotten their meter exchanged, we're sending them a letter shortly thereafter, communicating that their meter is operational: It's communicating over the air; we're switching them over to a bill method using the over-the-air data, and at that point we'll be able to start to offer the products that Sasha walked through.

And I'll hand it over to Justin.

[Reference: Presentation Slide 19]

**MR. JUSTIN BROWN [Duke Energy]:** Yeah, so as Joe talked about the communication process, when customers call that line or talk to a representative on-site, they typically have questions about three different topics: One is about radiofrequency, and a lot of – when we talk with them about radiofrequency – because, as Joe mentioned, the meters talk via a mesh network, 900 megahertz – we typically highlight that the FCC is the organization that controls and sets all the limits around RF. We also highlight that there's other typical devices in your home – namely, being a cell phone that practically everyone carries – that has a much, much higher output of RF than a

1 smart meter does. Even a microwave oven, baby  
2 monitors, garage door openers – just imagine all  
3 the things that are in a typical home today using  
4 wireless type technology out there.

5 There's some key things to think about when  
6 we're looking at RF, is really your signal  
7 strength, the transmission duration, as well as the  
8 distance from the source. So, in South Carolina,  
9 primarily all of our meters are outdoors, so it's  
10 not something that's in the home; the meters are  
11 outdoor. The meters do not sit there and  
12 communicate like you're streaming a video, for  
13 instance, all the time. It's an intermittent  
14 communication that occurs. And as you see, kind  
15 of, with the graph up on the screen, overall, the  
16 output of RF from a smart meter is significantly  
17 lower than, say, a cell phone or a microwave oven.

18 We also highlight, and many folks don't know,  
19 is, you know, this is not new technology; it's been  
20 around for decades. The company is currently using  
21 RF meters today with the drive-by solution that Joe  
22 highlighted earlier. That solution really  
23 communicates one way. The only major difference  
24 with these new meters is we're putting fixed access  
25 points along our distribution system and we're able

1 to have a two-way conversation with those meters,  
2 so it's using very similar type communications.

3 [Reference: Presentation Slide 20]

4 Slide 20. The other primary – two other  
5 concerns is really privacy and security, and I did  
6 want to highlight our system does provide in-depth  
7 security. We do encrypt the data in transit. It  
8 uses authentication messages, as well as key  
9 management, from a technical perspective.

10 No personal information is transmitted over  
11 the meter network, so we're only transmitting  
12 consumption data, event data – as Sasha alluded to,  
13 earlier – around meter tampering or other types of  
14 voltage alarms; we're able to get that information  
15 in more real time with this device, as well as the  
16 meter number. So your address or name is not  
17 communicated from the meter over our network, for  
18 this.

19 Another piece on cybersecurity, the meters do  
20 follow the NIST – or National Institute of  
21 Standards and Technology guidelines. You may be  
22 familiar with the NIST IR 7628 Guidelines. These  
23 meters comply and our system complies or aligns  
24 with those guidelines set by the government.

25 The last two bullets really focus in on

1           privacy, said the AMI meters do not measure  
2           individual usage of home devices or appliances.  
3           Sasha had alluded to some of the capability that  
4           required some other technology out there, maybe a  
5           sensor, for instance, he mentioned on the  
6           refrigerator, type thing. But the meter itself  
7           doesn't have that direct communication; it would  
8           require another type of sensor device to send, in  
9           between.

10           And from a data privacy perspective, you know,  
11           that always comes up. Really, what we're getting  
12           with these new meters is we're getting more of,  
13           really, the same type of information we have in the  
14           past, with the exception of some additional  
15           alerting capability and whatnot; we're getting it  
16           on a more granular basis. We still are storing and  
17           holding this data just like we always have, and  
18           hold it to the highest degree of privacy. So  
19           nothing from a privacy perspective has really  
20           changed with our, kind of, relationship with the  
21           customer, if you will.

22                           [Reference: Presentation Slide 21]

23           The next slide, Slide 21, we did want to  
24           highlight a couple of things here. It's always  
25           interesting, as, obviously, we're going to

1 customers' homes and residences, to let you see  
2 kind of what we are experiencing. So the pictures  
3 on the left, the left two pictures, are pictures of  
4 theft. That's a typical – what happens when you  
5 see the jumping of the wires there. And on the  
6 right-hand side is what we consider an unsafe  
7 metering condition. You see the meter has been  
8 pulled away from the house and really is laying  
9 over in the yard.

10 So as we're going through, we're identifying  
11 cases of theft, as well as unsafe metering  
12 conditions, and working them through our normal  
13 process, because we certainly don't want to leave  
14 or want the customer to continue with an unsafe  
15 metering condition, as really all three of these  
16 kind of depict, that are out there.

17 [Reference: Presentation Slide 22]

18 Thank you for your time today. I think we'd  
19 be open to questions from any Commissioner.

20 **CHAIRMAN HALL:** Thank you, so much, gentlemen.  
21 This was very informative.

22 Commissioners, any questions? Commissioner  
23 Elam.

24 **COMMISSIONER ELAM:** Good morning. I was  
25 looking at Slide 4, and had some questions about

1 the 4G direct contact. How many of those do you  
2 have in service today.

3 **MR. JOSEPH THOMAS [Duke Energy]:** So I don't  
4 have the exact number for how many we would have in  
5 South Carolina today, but it's a low percentage – a  
6 significantly low percentage of the 95,000  
7 deployed. And those are really only scenarios  
8 where we can't deliver enough other meters around  
9 that solution.

10 **COMMISSIONER ELAM:** Okay. And I believe you  
11 say it's for remote areas.

12 **MR. JOSEPH THOMAS [Duke Energy]:** Correct.

13 **COMMISSIONER ELAM:** Okay. 4G is usually  
14 weakest in the remote areas, isn't it?

15 **MR. JOSEPH THOMAS [Duke Energy]:** Right. So,  
16 we're – that's something where we're working with  
17 our partners, with Verizon or with AT&T, on those  
18 solutions of what is the network coverage within  
19 those areas. We know with certainty there will be  
20 a very low percentage of meters that we won't have  
21 a solution for –

22 **COMMISSIONER ELAM:** Uh-huh?

23 **MR. JOSEPH THOMAS [Duke Energy]:** – where we  
24 don't have a 4G solution and we can't offer the  
25 mesh solution.

1                   **COMMISSIONER ELAM:** When you use the 4G direct  
2 connect, does the meter require an assigned  
3 telephone number?

4                   **MR. JOSEPH THOMAS [Duke Energy]:** It doesn't  
5 have an assigned telephone number; it's done  
6 through IP addressing.

7                   **COMMISSIONER ELAM:** Okay. Slide, I think it's  
8 12 – yeah – the middle graphic shows the three  
9 phones?

10                  **MR. SASHA WEINTRAUB [Duke Energy]:** Yes.

11                  **COMMISSIONER ELAM:** What is the thing at the  
12 bottom?

13                  **MR. SASHA WEINTRAUB [Duke Energy]:** So the  
14 thing –

15                  **COMMISSIONER ELAM:** A hub?

16                  **MR. SASHA WEINTRAUB [Duke Energy]:** That's –  
17 we call that the bridge.

18                  **COMMISSIONER ELAM:** Yeah?

19                  **MR. SASHA WEINTRAUB [Duke Energy]:** So that's  
20 the device that connects your smart meter with your  
21 router.

22                  **COMMISSIONER ELAM:** Okay.

23                  **MR. SASHA WEINTRAUB [Duke Energy]:** So that's  
24 why you're able to see it in real time; instead of  
25 the data going up through the mesh network into our

1 systems and back, it's being connected directly to  
2 your router, your Wi-Fi solution, and therefore on  
3 to your phone. And that's required to make the  
4 transition from the meter to your router.

5 **COMMISSIONER ELAM:** Okay. Is that something  
6 that the customer has to buy or lease?

7 **MR. SASHA WEINTRAUB [Duke Energy]:** We don't  
8 think so. That's what we'll be working on is all  
9 that. We believe that will be part of the  
10 solution, that it will be part of this deployment.  
11 For this particular solution, we believe that  
12 there's an energy efficiency aspect to it that we  
13 would consider that to be part of the cost-  
14 effectiveness and the makeup of that EE program.

15 **COMMISSIONER ELAM:** Okay. Now –

16 **MR. SASHA WEINTRAUB [Duke Energy]:** But we're  
17 working on that. That's kind of what we're working  
18 and testing and understanding and all. And now  
19 that we have – really, we want to move forward with  
20 this and it seems like it's a very useful solution,  
21 we'll be negotiating with the vendor and working on  
22 that.

23 **COMMISSIONER ELAM:** Yeah, I didn't know if it  
24 was something that you would supply every time to  
25 everybody, once you put a new meter in, or whether

1 just to those who would find a use for it.

2 MR. SASHA WEINTRAUB [Duke Energy]: Yeah, it'd  
3 be those who select to have this and download the  
4 app and find a use for it, because we know, in –  
5 this is a solution that's been deployed in a few  
6 other utilities, and you can – the type of customer  
7 who would want to see that real-time usage, kind of  
8 a ballpark, is a third to maybe half of our  
9 customers would really be interested in that type  
10 of real-time solution, and we wouldn't give it to –  
11 just to those who select it.

12 COMMISSIONER ELAM: I didn't know if we were  
13 looking at a new generation of, like, cable TV  
14 boxes or –

15 MR. SASHA WEINTRAUB [Duke Energy]: Oh, no,  
16 no.

17 [Laughter]

18 COMMISSIONER ELAM: Okay, that's good.

19 MR. SASHA WEINTRAUB [Duke Energy]: Okay.  
20 Yeah.

21 COMMISSIONER ELAM: Now, the enhanced services  
22 that you talked about, would there be any monthly  
23 charge to what you're talking about?

24 MR. SASHA WEINTRAUB [Duke Energy]: We don't  
25 think so. So, for example, being able to pick your

1 own due date, being able to – we don't believe that  
2 it will require us to do anything different than  
3 just our normal process of getting recovery.  
4 Again, there might be a program or two that we will  
5 come back and seek approval as an EE program, if  
6 it's cost-effective. But we don't envision us  
7 saying that there's a specific fee to use these  
8 services. We would like it to be part of our  
9 services that we offer with this AMI deployment.

10 **COMMISSIONER ELAM:** Okay. Thank you.

11 **MR. SASHA WEINTRAUB [Duke Energy]:** Yes.

12 **CHAIRMAN HALL:** Thank you.

13 Commissioner Randall.

14 **COMMISSIONER RANDALL:** Yeah. I was – you  
15 know, I'm one of those people who would be watching  
16 his app, so – and calling home. So are you going  
17 to offer any kind of family counseling –

18 [Laughter]

19 – for people like me?

20 **MR. SASHA WEINTRAUB [Duke Energy]:** My wife is  
21 looking for that, as well.

22 **COMMISSIONER RANDALL:** Yeah, I would think.  
23 Do you have, in your – where you've got the mesh,  
24 is there direct – I know, sometime, we have in  
25 Clinton, in a smaller scale, we've got sort of a

1 poor man's AMI, and I know in some places where we  
2 need it, we have direct service to a meter and then  
3 other places we've got the mesh so that we can have  
4 a little more communication there. Does that – do  
5 you have two-way with all your meters when they're  
6 in a mesh situation?

7 **MR. JOSEPH THOMAS [Duke Energy]:** That's  
8 right, yeah.

9 **COMMISSIONER RANDALL:** Okay.

10 **MR. JOSEPH THOMAS [Duke Energy]:** So whether  
11 you're in the circle, on Slide 4, of the mesh  
12 network, or you're in the 4G connection, those are  
13 direct – those are two-way communications with  
14 those meters.

15 **COMMISSIONER RANDALL:** Okay. Yeah, I was  
16 trying to spit out "fiber." In some places, we put  
17 fiber straight there, so, okay. Thank you.

18 **MR. SASHA WEINTRAUB [Duke Energy]:** You're  
19 welcome.

20 **CHAIRMAN HALL:** Commissioner Fleming.

21 **COMMISSIONER FLEMING:** Good morning.

22 **MR. SASHA WEINTRAUB [Duke Energy]:** Good  
23 morning.

24 **MR. JOSEPH THOMAS [Duke Energy]:** Good  
25 morning.

1                   **COMMISSIONER FLEMING:** This has been very  
2                   interesting. And you were – it'll be, really, I  
3                   think, fun, once they're all installed and see how  
4                   it responds. And I was kind of thinking a little  
5                   differently, but is this going to be like Facebook,  
6                   people –

7   [Laughter]

8   – are becoming so addicted to it that that's  
9                   all they're doing, watching what's going on for a  
10                  while, I imagine?

11                  **MR. SASHA WEINTRAUB [Duke Energy]:** Well, I'll  
12                  use my experience, if I may. Certainly, in the  
13                  beginning, it's very exciting. You really are  
14                  trying to understand your usage. I was trying to  
15                  understand – I had it installed at my house in  
16                  March, and Daylight – the time change happened, and  
17                  I didn't change my lights. And then I realized, as  
18                  I was trying to lower my usage, okay, let me make  
19                  that effort of changing my timers and doing things,  
20                  because I realized when the lights turn on, I saw  
21                  it sooner. So it – but then after a while, I got  
22                  familiar with it and there was a little bit of a  
23                  wain of my usage, because I figured it out. That's  
24                  where, for many of these programs, you're then  
25                  trying to engage the customer to continue.

1           So there's things like gamification. So, at  
2           first, I didn't quite know what that meant, but  
3           this is where you can have comparisons with like-  
4           size homes to say, "Who is using less energy?"  
5           "Who has the lower always-on-at-night than others?"  
6           And there are some people who are wired to be  
7           competitive, to say, "I want to, you know, use less  
8           and win," even though you don't necessarily know  
9           who those competitors are. I liken it to my  
10          daughters on Fitbit, who are sitting there trying  
11          to get more steps than friends. So it's a little  
12          bit of a gamification, in that way. So how you  
13          engage the customer to continue to be interested,  
14          continue to roll out tips and opportunities for  
15          them to save, is going to be part of this process  
16          as we iterate and get better and engage the  
17          customer on a totally different way than we are  
18          today.

19                 **COMMISSIONER FLEMING:** Okay. Well, just from  
20                 what you said, though, help me understand how you  
21                 know what the usage is – I believe you said earlier  
22                 that you don't know the individual information. So  
23                 how do you know whether it's air conditioning or  
24                 lighting or whatever that is causing – if you don't  
25                 have sensors on the appliances?

1                   **MR. SASHA WEINTRAUB [Duke Energy]:** Sure.

2                   This is going to be where it really is a solution  
3                   that's a post-processor. So on Slide 12 that has  
4                   the picture on the right –

5                                   [Reference: Presentation Slide 12]

6                                   – there's a solution that focuses on  
7                   specifically understanding the signal pattern in  
8                   the data, so they're literally looking at that  
9                   spike and realizing that that's your air  
10                  conditioner that looks like that, and that's your  
11                  A/C. So it's analytics that's pulling apart the  
12                  signal and understanding, is this your  
13                  refrigerator? Is this your A/C? And it's using a  
14                  history of like profile signals to – I'll use the  
15                  word – take an educated guess as that's your  
16                  appliance. In some cases, you might have to put a  
17                  sensor on it, to be specific, so it knows when this  
18                  sensor is vibrating, the compressor is on, and that  
19                  is your refrigerator. But again, that's a post-  
20                  process that this AMI deployment allows you to do,  
21                  because it is seeing that data in real time and  
22                  allows another solution to do its magic, if you  
23                  will, to tell us that. The meter itself is not  
24                  designed to do that type of post-processing or  
25                  analysis itself. You need to bolt on a different

1 solution.

2 **COMMISSIONER FLEMING:** And I wanted to ask you  
3 about the Pay As You Go Program. At first, it was  
4 just kind of an experimental program.

5 **MR. SASHA WEINTRAUB [Duke Energy]:** Yes.

6 **COMMISSIONER FLEMING:** So I assume the results  
7 were positive?

8 **MR. SASHA WEINTRAUB [Duke Energy]:** They are.  
9 We will be talking about the results here. We  
10 expanded it – it was difficult – we started out in  
11 really particular ZIP Codes with AMI meters, and we  
12 were really having to send marketing material,  
13 emails, and bill inserts, and direct mail to those  
14 customers. And really what we realized is how much  
15 more effective will be having a conversation with  
16 more of our customers, such that when a customer  
17 calls in to either start service with us or if they  
18 have a billing issue that they need to resolve, as  
19 far as payment, to provide this option directly  
20 with our call-center specialists. So we are  
21 finding it successful.

22 We are excited to roll this out to more of our  
23 customers in South Carolina, which we just started  
24 that process. And we believe, when you look at  
25 other companies that have this type of solution,

1           again, kind of a ballpark number, 10 to 15 percent  
2           of our customers would choose this prepay as an  
3           option. So we are working on working through some  
4           kinks in the system, which just comes with  
5           deployment, but we deem it and I think our  
6           customers who are on it deem it as very successful.

7                   **COMMISSIONER FLEMING:** And how does this  
8           change the way you analyze the data, coming in in-  
9           house, at Duke Energy? Is it like sitting in a  
10          Homeland Security office? Are you having a ton of  
11          people sitting in front of screens? Or is it all  
12          done by technology?

13                   **MR. JOSEPH THOMAS [Duke Energy]:** So, through  
14          technology. So, it's important to remember when  
15          you look at the granularity on the application that  
16          we walked through, that the customer sees, that's  
17          not the granularity of data that's being backhauled  
18          to the Duke network. So in South Carolina, we'd be  
19          loading 15- to 30-minute interval data that's being  
20          brought back, and then there's a back-office team  
21          that's looking at that data and ensuring that it's  
22          ready and available, either on the usage portal or  
23          that it's ready and available for bill calculation.

24                   **COMMISSIONER FLEMING:** Okay, great. And I  
25          want to ask about security breaches. I know you're

1 taking every – you're managing it in a way so that  
2 it is as secure as possible, but there are always  
3 breaches out there. And what is the policy for  
4 informing the customer if there's a security  
5 breach, or just how are you handling that.

6 **MR. SASHA WEINTRAUB [Duke Energy]:** Yeah, I'll  
7 take that. So our policy now is, whenever we  
8 believe there's a breach of personal information,  
9 we make the customer aware; and if we have to, we  
10 provide the credit monitoring services. But we  
11 certainly will work hard to make sure there is no  
12 credit breach. And this is regardless of this  
13 solution or any solution that we have, with the  
14 personal information of our customers and making  
15 sure it's housed and secured properly. And when  
16 there is a breach, it's dealt with – the customer  
17 is notified, and credit monitoring services are  
18 made available to that customer – to make sure  
19 there's no hacking, there's no fraud related to  
20 their account, because of that personal  
21 information.

22 **COMMISSIONER FLEMING:** So it's a very quick  
23 turnaround, the notification.

24 **MR. SASHA WEINTRAUB [Duke Energy]:**  
25 Absolutely. As quick as we know it's going on and

1 see it, yes. And it does happen from time to time,  
2 and we move on it as quickly as possible and put in  
3 solutions so it does not happen again.

4 **COMMISSIONER FLEMING:** Has it happened in the  
5 area that you used kind of as a model to study?

6 **MR. SASHA WEINTRAUB [Duke Energy]:** It has not  
7 – where it would happen is, if – I'm going from  
8 memory here – we had a vendor who had information  
9 on a laptop that was stolen out of his car, and so  
10 what we needed to make sure was that – you know,  
11 our policies are that that data would be encrypted,  
12 that it wouldn't necessarily be made available on  
13 that laptop unless it was really required, which in  
14 this case was a Home Energy Audit. I don't even  
15 think it was in this territory.

16 But those are the type of areas where we know  
17 something happens and we make sure that the privacy  
18 issues are addressed. And, again, we want to start  
19 out with it as encrypted, as password protected,  
20 and then we make sure that there is no breach of  
21 personal information.

22 **COMMISSIONER FLEMING:** And these AMIs are  
23 really necessary for reaching that 1 percent for  
24 residential distributed energy, as well, aren't  
25 they? Or an important part of that?

1                   **MR. SASHA WEINTRAUB [Duke Energy]:** Yes, I  
2                   think – if your question is, when you start getting  
3                   into distributed energy resources and you start  
4                   talking about solar solutions and other solutions,  
5                   being able to see their meter usage, being able to  
6                   even know what is a distributed energy resource  
7                   producing against your consumption, and then you  
8                   have the net. So those are all types of  
9                   information that you really want to have at a  
10                  granular level to provide better billing  
11                  information, to provide better power quality and  
12                  reliability, understanding of the system.

13                  So, especially with distributed energy  
14                  resources as it gets more and more, this type of  
15                  granularity of what is going on at someone's home  
16                  is that much more important.

17                  **COMMISSIONER FLEMING:** Thank you.

18                  **MR. SASHA WEINTRAUB [Duke Energy]:** You're  
19                  welcome.

20                  **COMMISSIONER FLEMING:** Well, it's all very  
21                  exciting.

22                  **MR. SASHA WEINTRAUB [Duke Energy]:** Thank you.

23                  **CHAIRMAN HALL:** All right. I believe – oh,  
24                  Commissioner Whitfield.

25                  **VICE CHAIRMAN WHITFIELD:** Thank you, Madam

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Chairman.

Thank you for that presentation. I believe the other Commissioners have asked most of my questions, and it was a very thorough presentation, and I certainly appreciate Commissioner Fleming's questions about security and data breaches and that sort of thing, especially with this deployment. It's certainly – I'm sure you all are working hard to maintain the vulnerability as low, as you deploy this AMI system out.

I do have one more thing I want to follow up on, and I think Commissioner Elam went down this path a little bit with you, but really just for my own reinforcement, I guess, in my own mind. Back to the network of mesh meters, I guess back to that Slide 4 –

[Reference: Presentation Slide 4]

– help me one more time, I guess, look at the differences between that and a direct contact, say, in a remote area, and what you're able to do with one system versus the other, and what you're – I think one of you said there will be some rare instances, I think was the word you used, or rare situations, or customers that can't be connected. So if you could maybe address that just a little

1 bit? I don't care which one of you, but walk me  
2 through the mesh network. I see the mesh network  
3 diagram and you have all of that grouped together.  
4 I get that. And I think you also said you were  
5 directly connected to the mesh network two-way, and  
6 you were also direct-connected to a 4G connection,  
7 as well, so if you could talk to me about the two  
8 different connections.

9 **MR. JOSEPH THOMAS [Duke Energy]:** Sure. Sure.  
10 So in the mesh network, it's meters talking to  
11 meters to build the network. So each meter that  
12 you deploy is another access point on the network.  
13 So the more meters you have in a dense area, the  
14 stronger that network is; and it also allows us to  
15 build duplication within that network, or  
16 redundancy.

17 When you get to the grid router, that is a  
18 cellular device, so it's collecting the data from  
19 the meters that it's communicating with directly,  
20 and then it's communicating with the back office  
21 via cellular. The 4G products or meter is a – it's  
22 performing the same function as that CGR, but it's  
23 communicating directly from that specific meter  
24 back to the back office.

25 **MR. SASHA WEINTRAUB [Duke Energy]:** Because

1           there's not enough density of other like meters to  
2           create that mesh network, and so, therefore, you  
3           just basically don't create the mesh network; it's  
4           more cost-effective to create a point-to-point  
5           solution with that particular home or business,  
6           back to the back office at Duke Energy.

7           **VICE CHAIRMAN WHITFIELD:** So the 4G is just  
8           directly to the back office, and the mesh network  
9           goes through the grid router.

10          **MR. SASHA WEINTRAUB [Duke Energy]:** That's  
11          right.

12          **MR. JOSEPH THOMAS [Duke Energy]:** That's  
13          correct. And all of the communication – meter to  
14          meter, or meter to CGR, or CGR to back office – is  
15          all encrypted through that process.

16          **VICE CHAIRMAN WHITFIELD:** And, of course, you  
17          mentioned the 900 megahertz radio frequency as what  
18          I guess the FCC allows you to use. But in the  
19          event that somebody is not able to – they're not in  
20          a dense area where the mesh network is and they're  
21          not able to get a direct connect through 4G, they  
22          just wouldn't be able to participate? Or what?

23          **MR. JOSEPH THOMAS [Duke Energy]:** That's  
24          correct. So we expect those are going to be very  
25          rare and very low, and we are continuing to work

1 with our cellular vendors to build out that network  
2 strength where we can for 4G coverage.

3 **VICE CHAIRMAN WHITFIELD:** Thank you.

4 That's all I have. Thank you, Madam Chairman.

5 **CHAIRMAN HALL:** Thank you.

6 Commissioner Hamilton.

7 **COMMISSIONER HAMILTON:** I'd like to thank you,  
8 too, for the very interesting program. It was very  
9 challenging. One question I've got, for a group of  
10 people that I'm aware of, that have to call the  
11 cable company to get the TV turned on when they cut  
12 it off with the wrong remote, now, with a smart TV  
13 that's a little confusing, this will be painless, I  
14 assume, for those people?

15 **MR. SASHA WEINTRAUB [Duke Energy]:** We –  
16 certainly, the interface and the engagement –  
17 again, these are choices that we want to provide  
18 our customers, so some of our customers are not  
19 comfortable with a smart – with an app, which is  
20 why we wanted it available via the webpage. So,  
21 again, making sure that many of our customers all  
22 have the opportunity to engage and participate with  
23 a variety of different devices, whether it's the  
24 web, whether it's your phone, is all part of what  
25 we would like to deploy with this.

1                   **COMMISSIONER HAMILTON:** Thank you, very much.

2                   **MR. SASHA WEINTRAUB [Duke Energy]:** You're  
3 welcome.

4                   **COMMISSIONER HAMILTON:** I enjoyed it very  
5 much.

6                   **MR. SASHA WEINTRAUB [Duke Energy]:** Thank you.

7                   **CHAIRMAN HALL:** Thank you.

8                   Commissioner Elam.

9                   **COMMISSIONER ELAM:** If I could just follow up,  
10 there is, on Slide 4 –

11                                 [Reference: Presentation Slide 4]

12                                 – there is a cellular component to the mesh  
13 network, as well?

14                   **MR. JOSEPH THOMAS [Duke Energy]:** Correct.

15                   **COMMISSIONER ELAM:** Okay. It made me think  
16 that, in the situation of a power outage, and you –  
17 I mean, obviously, there's backup power on a cell  
18 tower, but usually when the power goes out is when  
19 everybody starts calling everybody on their cell  
20 phone.

21                   **MR. JOSEPH THOMAS [Duke Energy]:** Right.

22                   **COMMISSIONER ELAM:** Is this going to be  
23 subject to traffic bottleneck?

24                   **MR. JOSEPH THOMAS [Duke Energy]:** So we have  
25 not seen that at all, today, in the private way

1           that that network is deployed –

2                   **COMMISSIONER ELAM:** Uh-huh?

3                   **MR. JOSEPH THOMAS [Duke Energy]:** – between  
4           the CGR and the Duke back office.

5                   **COMMISSIONER ELAM:** And so you've had power  
6           outages in areas where this is deployed?

7                   **MR. JOSEPH THOMAS [Duke Energy]:** Yes. Yeah.

8                   **COMMISSIONER ELAM:** Okay.

9                   **MR. JOSEPH THOMAS [Duke Energy]:** And the CGR,  
10          which we didn't touch on, has an eight-hour – at  
11          least an eight-hour battery life on it. So, as we  
12          talked about the outage scenarios, the CGR, even  
13          though there's no power in the area, the CGR's  
14          still able to capture that data on the battery.

15                  **MR. SASHA WEINTRAUB [Duke Energy]:** And we're  
16          also deploying lots of this data back to the back  
17          office in the middle of the night, in some cases.  
18          So in other words, you can schedule when you would  
19          like to pull it, and avoid those peak times as best  
20          you can.

21                  **COMMISSIONER ELAM:** I just didn't know what it  
22          would be able to tell you, as far as identifying  
23          outages.

24                  **MR. SASHA WEINTRAUB [Duke Energy]:** Yeah, and  
25          so this is where that last – so of those meters,

1           they all have – they have alerts, so they do more  
2           than just, you know, measure consumption. They  
3           have alerts to say, "I lost power," and they'll do  
4           a last gasp. They give alerts now, back to us, if  
5           it tips more than 45 degrees. That might be an  
6           indication of somebody performing theft. They give  
7           alerts back to us if there's a thud, someone  
8           banging it, again trying to maybe do something. So  
9           the meter, themselves, is measuring a variety of  
10          different attributes that it can send back. It's  
11          sending us things like voltage, so we can  
12          understand when is a consumer – measuring voltage,  
13          so when is a consumer having sag? It's not just  
14          outages that are causing issues, especially with  
15          some of our commercial and industrial customers.  
16          It's measuring impedance that might allow us to  
17          understand, on a circuit, are we seeing trees that  
18          might be hitting a line, and that may be an  
19          indication of us trying to accelerate some  
20          vegetation management.

21                 So it's measuring a variety of things that it  
22                 can make us aware of and alert us back, that we  
23                 just don't have that type of visibility today that  
24                 far into our network.

25                         **COMMISSIONER ELAM:** Okay, thank you.

1                   **MR. SASHA WEINTRAUB [Duke Energy]:** You're  
2 welcome.

3                   **CHAIRMAN HALL:** Thank you. And finally Mr.  
4 Melchers has some questions.

5                   **MR. MELCHERS:** Thank you. I'm interested in  
6 the smart app. Two questions. You're getting 15-  
7 or 30-minute data back to Duke, but you're  
8 providing the customer with instantaneous  
9 information through the hub.

10                  **MR. SASHA WEINTRAUB [Duke Energy]:** If they  
11 choose, that's correct.

12                  **MR. MELCHERS:** If they choose it.

13                  **MR. SASHA WEINTRAUB [Duke Energy]:** Yes.

14                  **MR. MELCHERS:** Is your data every 15 to 30  
15 minutes giving you the same granularity, but just  
16 in slugs, or are you just getting a 15-minute, you  
17 know, gross picture?

18                  **MR. JOSEPH THOMAS [Duke Energy]:** Right, so  
19 you're just getting a – with what's backhauled on  
20 that network, you're getting what was the usage for  
21 that 15-minute period. So it's a time; it's  
22 saying, "Between 9 a.m. and 9:15 a.m., you used 10  
23 kWh."

24                  **MR. MELCHERS:** And you're not seeing the inner  
25 variability within those 15 minutes.

1                   **MR. JOSEPH THOMAS [Duke Energy]:** That's  
2                   correct. So that's provided via – the hub that's  
3                   in the home is communicating via – it's got a – the  
4                   meter has a separate radio on it that's  
5                   communicating with that hub, and that is pulsing  
6                   data at a much more granular pace.

7                   **MR. MELCHERS:** Okay.

8                                   [Reference: Presentation Slide 12]

9                   **MR. SASHA WEINTRAUB [Duke Energy]:** One of the  
10                  things that we're realizing is the amount of data  
11                  that's coming back to us, and so just as this is  
12                  deployed, you're talking a tremendous amount of  
13                  data. And so, certainly, I would envision a future  
14                  where maybe we need to have that type of  
15                  granularity for a variety of things, but, again,  
16                  right now we're doing it still for calculating a  
17                  bill but at a much different interval. But the  
18                  data of pulling all this back is rather voluminous  
19                  that we are continuing to work on solutions for.

20                  **MR. MELCHERS:** Okay. The other question is:  
21                  Will you be considering integration with various  
22                  smart-home, home-automation products that are out  
23                  there, with this? I mean, this is the kind of thing  
24                  that – you know, SmartThings, Nest, Iris, will  
25                  these talk with those products?

1                   **MR. SASHA WEINTRAUB [Duke Energy]:** So, the –  
2                   what we're talking about is the meter itself, but  
3                   as you start talking about these solutions – so  
4                   that bridge that you see right there [indicating],  
5                   that bridge is in the new version of the app that  
6                   we're working with the vendor on; it can control  
7                   the thermostat via the app that you see there,  
8                   because it's then connecting with the smart  
9                   thermostat through API standard protocols. So all  
10                  that is starting to become available, and that's  
11                  really into the app design and how these apps are  
12                  talking to each other and how these devices are  
13                  talking to each other.

14                  There is, I believe, not too far in the future  
15                  a vision where all these devices are talking and  
16                  being connected and being told when is a good time  
17                  to be on, when is a good time to be off. I think  
18                  that's all coming and will be part of the  
19                  transition of this Internet of Things as it comes  
20                  to the home.

21                  **MR. MELCHERS:** Thanks.

22                  **MR. SASHA WEINTRAUB [Duke Energy]:** Yeah.  
23                  You're welcome.

24                  **MR. MELCHERS:** Okay.

25                  **CHAIRMAN HALL:** Commissioner Fleming.

1                   **COMMISSIONER FLEMING:** I just – aren't there  
2                   places now where that is happening? Where all the  
3                   communication is going on and –

4                   **MR. SASHA WEINTRAUB [Duke Energy]:** There are.  
5                   And it doesn't require a smart meter to happen. I  
6                   mean, you can have devices that your stereo can  
7                   talk to your phone, that can talk to your light  
8                   bulbs. So that is happening now. The future will  
9                   be how you're integrating many of these devices.  
10                  We're doing this around the smart meter for your  
11                  energy usage, but can you imagine a future where,  
12                  you know, when you have that spike in the usage  
13                  there, that maybe you're telling, if you have a  
14                  pool, "Hey, don't turn on your pool pump because  
15                  there's a lot of energy consumption." Or, you  
16                  know, "Don't go on now, because there's a peak  
17                  period of time." So, again, this is the start of  
18                  all those things being connected in a more  
19                  integrated fashion. It is going on today; it's not  
20                  necessarily going on with your smart meter and  
21                  having that all connected.

22                  **COMMISSIONER FLEMING:** Okay.

23                  **MR. SASHA WEINTRAUB [Duke Energy]:** Yeah.

24                  **COMMISSIONER FLEMING:** I was just – I was  
25                  thinking maybe in other parts of the country where

1           it's already started, but it's just beginning.

2           **MR. SASHA WEINTRAUB [Duke Energy]:** Yeah.

3           **COMMISSIONER FLEMING:** All right. Thank you.

4           **CHAIRMAN HALL:** Okay. Thank you, gentlemen.

5           I just have one question: How much is this going to  
6           cost?

7           **MR. SASHA WEINTRAUB [Duke Energy]:** So the AMI  
8           deployment – Joe, do we have the exact number?

9           **MR. JOSEPH THOMAS [Duke Energy]:** It's not on  
10          this – so, \$120 million was the dollar that was  
11          included.

12          **MR. SASHA WEINTRAUB [Duke Energy]:** For the  
13          AMI meters. So for the meters, themselves, you  
14          know, we believe it will be no more than \$120  
15          million of full deployment of all the AMI meters  
16          for DEC South Carolina.

17          **CHAIRMAN HALL:** Okay. And that's for all  
18          customers, all customer classes, and –

19          **MR. SASHA WEINTRAUB [Duke Energy]:** That's  
20          correct, yes.

21          **CHAIRMAN HALL:** Okay. Well, thank you,  
22          gentlemen. This is my last hearing as Chair. I'm  
23          celebrating, so...

24                               [Laughter]

25           If there's nothing further, then we are

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adjourned.

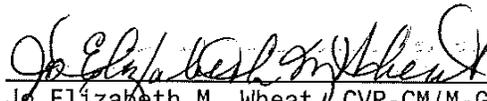
[WHEREUPON, at 11:33 a.m., the hearing in  
the above-entitled matter was adjourned.]

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C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had in an Allowable Ex Parte Proceeding held before THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA in Columbia, South Carolina, according to my verbatim record of same.

IN WITNESS WHEREOF, I have hereunto set my hand, on this the 25<sup>TH</sup> day of June, 2016.

  
Jo Elizabeth M. Wheat, CVR-CM/M-GNSC  
Hearings Reporter, PSC/SC  
My Commission Expires: January 27, 2021.