BEFORE THE

ILLINOIS COMMERCE COMMISSION

SMART APPS FOR UTILITY OPERATIONS POLICY SESSION

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Chicago, Illinois

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North LaSalle Street, Chicago, Illinois.

PRESENT:

BRIEN J. SHEAHAN, Chairman

JOHN R. ROSALES, Commissioner

D. ETHAN KIMBREL, Commissioner

ANASTASIA PALIVOS, Acting Commissioner

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ACTING COMMISSIONER PALIVOS: Good afternoon. I'm delighted to be here today to welcome you to the Illinois Commerce Commission's Policy Session on Smart Apps for Utility Operations.

As many of you know, there's a mobile app for nearly every aspect of life. Mobile apps help us get more information at a faster rate than ever before. This makes many tasks quicker and easier to complete.

As the world becomes more digitalized and automated, utilities are also slowly transitioning towards this trend. While some utilities have made efforts to provide their customers services through mobile apps, it appears that there's still an opportunity to provide even more information and services to utility customers.

Today we will hear from distinguished panelists who will discuss how mobile apps will provide grid operations and serve customers in new ways. Panelists will also discuss policy considerations for smart apps in the utility world.

These policy sessions serve to create
respectful and necessary conversation around topics of interest to the Commission, so please keep that in mind as we move through the presentations and conversations.

Thank you again for being here with us today and for your interest in this topic. Without further ado, I will pass it off to our first moderator, Ritta Merza, one of my Legal and Policy Advisors.

Ritta?

MS. RITTA MERZA: Thank you, Commissioner Palivos.

During this panel, we will discuss the kinds of apps utilities and customers are using and end users are utilizing and how smart apps benefit utility operations and customer engagement and how we can encourage user education, manage change, and process information.

Before I begin, I would like to introduce our first panelists.

Today we will hear from Deepak Swamy, CEO and Founder of iRestore; Michael McCallan,
Vice President of Emergency Planning and Electric Services at NationalGrid; Michael Rutkowski, Managing Director at Navigant.

Mike Rutkowski brings his perspective as a strategic partner of iRestore, and Mike McCallan has helped deploy iRestore apps to thousands of users in their service territory.

We'll also hear from Kevin Dick, Director at Delta Institute; and Ty Benefiel, Co-Founder and President at MeterGenius.

Please join me in welcoming our panelists today.

(Applause.)

MS. RITTA MERZA: Before we dive into our discussions, I want to give our panelists the floor to give a brief overview of who they are and what their company does.

And, Deepak, you can get us started.

MR. DEEPAK SWAMY: Thank you, Ritta. My name is Deepak, and I am the founder and CEO of iRestore. iRestore is a company that's about bringing the world of apps to utility operations.
We're all familiar with apps in our daily lives. We use apps every day to book airline tickets, to transact with our financial institutions, and so on, and one of the visions behind founding iRestore was that there's an opportunity to help utilities operate their networks more effectively, more safely, and more reliably using this technology.

So there's been a lot of fits and starts from our perspective at mobile technology at utilities, and we think that the smart phone platform providers; specifically, Apple and Google, have invested a lot to create an underlying platform that enables some very powerful applications that make for better use in the field.

So these devices, supercomputers in your pockets, are currently used in the industry extensively for calling and texting, and most of the applications, when we started the company, that the industry uses were designed for PCs, and they were mostly designed in the '80s, '90s, early 2000s, and in the last 18 or 20 years, you have seen the
emergence of these, really, supercomputer-type
devices that are portable, that have imaging, video
capability, that have GPS technology, and that are
steadily getting better.

So rather than invest in a new custom
technology platform to develop mobile applications,
what we're attempting to do, and primarily a lot of
what we do, at iRestore is build applications for the
phone form factor. The beauty of the phone form
factor is that you can operate this device with one
hand, unlike a tablet which you require two hands in
the field. So from a safety perspective, from a
human factors design perspective, a phone offers a
lot of advantages; although, we do build applications
for tablet-type devices as well.

So I guess our focus at iRestore is
building utility -- building applications for utility
operations users, but that are designed by utility
operations users. So half the company comes from a
utility background. I have my colleagues here, Mike
Sabatino and Michael Haflik (phonetic), that come
from a utility background, and the other half of the
company comes from a mobile app tech background, and
the combination really allows us to create some magic
for utility customers.

I'm really pleased that we can have
Mike McCallan from NationalGrid, who was our first
customer really for our First Responder app -- you're
going to hear a little bit more about that today --
to have him travel all the way from Massachusetts to
join us here, and, also, Mike Rutkowski from
Navigant, who is a partner of iRestore.

So we wanted to really get lessons
learned and what they found in deploying these
products that you'll hear about later.

Thank you, Ritta.

MS. RITTA MERZA: Thank you, Deepak.

Next, we have Mike.

MR. MICHAEL McCALLAN: Thank you very much.
Commissioners, thank you for the opportunity to come
here today.

I didn't need an app to do that.

But again, thank you for the
opportunity to come here to explain NationalGrid's
journey with building apps and using apps in operations not so much in the customer end of it, but we've found tremendous value in serving our customers by having better information around what's going on in the field, having more eyes in the field for our supervisors as well to make better decisions, more timely decisions.

So I'll just kind of walk through these few slides. This is not a long, boring presentation, believe me.

The app -- our goal was to create an app as simple as possible, and when I first met with Deepak to explain what we were looking for for an app, it was really around our first responders, police and fire, and those communities to share information. When there's a pole hit or a tree down or a pole down or any situation that they may encounter, typically they call us, and they give us information, there's a tree down on such and such a street and the police and fire are standing by.

And my goal was to make an app that was simple for them to use, as simple as booking a
plane trip on Southwest Airlines. A few buttons to click, and it was done.

So what we ended up creating, this is our service territory. We serve upstate New York. We also serve Long Island, New York, with gas and Brooklyn, New York, and we have electric and gas in Massachusetts and Rhode Island, just to give you a picture of the number of customers we serve and the total area.

So these slides really are what our first responders see. This is not an app for NationalGrid employees to have. This is given to -- free of charge to the police and fire so they can record these things.

The first slide just gives them a little safety warning about coming up to live wires and poles, and then the next two pictures really are just a broken pole because of a motor vehicle. They click a button. They get the next one, motor vehicle accident, and they take a photo.

The photo is -- you know, a picture is worth a thousand words. Many cases we'll get a
call that there's a tree on the wire, and it could be something that can be bumped up, a crew, safely done and restored, or we may get out there and it needs a crane, because it's an 80-foot tree, 30 inches in diameter. So that having that knowledge and having that picture allows us to better respond to that outage or that particular situation.

So again, very simple screen shots of what a first responder's use for us, and then once they elected to submit that, it geotags their location, so they don't have to type in an address or anything like that. It geotags it. They have a couple of slide switches where they can just say if the police and fire are standing by, is the road blocked, and if they're satisfied with that, they can put a couple of comments in, they can submit, and the submission is done and complete.

And it actually just goes to our supervisors. So our supervisors get a notification of what's going on in their particular area, and it allows them to respond quicker and have a better idea what type of material and equipment -- you know,
better use of those resources.

Our control centers see it as well.

So if there's a large circuit outage, they will get to see what's going on and what they need to do for their notification.

Again, it's very, very simple. And this really came out of a suggestion from a fire chief in a community where he said, I want to send you text pictures of what's going on, and we said, oh, wait a minute, if we allowed everybody to do that, it's not going to be controlled, and we're not going to have really good responses.

So this app really was customer driven from our first responder, and it's been adopted very, very well, great pictures during storms and blue skies. What I have learned in this business 34 years, it's about collaboration, collaboration with the municipal police and fire when it becomes an emergency response, and this has dramatically improved. The fire and police just absolutely love providing this information to us.

Thank you.
MS. RITTA MERZA: Thank you, Mike. If you can maybe pass the clicker down the row. Thank you.

MR. MICHAEL RUTKOWSKI: Hello, and thank you for -- is the mic on?

MS. RITTA MERZA: It should be.

MR. MICHAEL RUTKOWSKI: Mike Rutkowski with Navigant Consulting. Thank you for the opportunity to share some thoughts on smart apps for utility operations.

I have been working in the utility industry for over 25 years, working with utilities, and what Navigant's consulting does is we help utilities transform their operations, provide better customer service, improve reliability through operational improvements and the use of technology.

So I think two general categories of smart apps in the utility space and where they can be applied, one is as it relates to improving operations and allowing field crews to perform their jobs better, faster, cheaper, and having that information, being able to act on it, to match up resources where they're needed to meet a customer need, and lower
costs.

So that gets into kind of the

internal use of a smart app within the utility field

force, and there are benefits in terms of improving

reliability, providing quicker response, also

lowering costs and improving safety related to that

sort of internal use.

The second area is as it relates to

improving the utility-to-customer relationship and

being able to transact with the customer and exchange

information through a new channel.

When you think about mobile

applications for utilities, there is quite a history

there. Utilities have been using the telephone,
natural wire telephone for as long as it's been in

existence to collect calls from customers, and then

an internal field course operation, the two-way

radio, has been used for many decades.

Most utilities have moved to mobile

data terminals in their trucks for their field crews

to use in terms of getting information for dispatch,
exchanging information. But now we're in the era of
the smartphone and the tablet where these devices are really ubiquitous, and they're low cost, and the expectation has been set through other industries in terms of how we all use smartphones and apps to interact with, you know, service providers and retailers and just the ease of use, the expectation, the fact that it's always there and can quickly exchange information.

So within the customer-to-utility interaction -- and I know Ty will probably add onto this, but there's a few categories of general usage. One is the basic interactions with the utility bill questions, to report an outage, to understand usage.

There's also -- I would say the next level up is to engage in energy efficiency programs, and we have a few examples of energy efficiency programs using a smartphone and app that have produced real savings and are cost justified.

And then finally, I think utilities having that customer connection are able to provide additional services to utility customers that provide benefit to those customers.
So those are a few of the areas that we've worked in, and we'll be sharing some other thoughts as we go through the questions.

MS. RITTA MERZA: Thank you.

Kevin?

MR. KEVIN DICK: Hi, I'm Kevin Dick with the Delta Institute. We're a 20-year-old not-for-profit in the Midwest. We work on a variety of programs. One of them is the built environment, and I do a lot of our energy efficiency in buildings work at Delta, and I also started an application designed to help low income customers take advantage of their utility bill and -- take advantage of utility incentive programs and pay their utility bills and get access to subsidies as well. It's called Lumen.

So I'll talk a little bit about my experience with low income customers over the last 20 years of working with them, and also how they interact with and engage with smart apps and utility apps.

So I have done a lot of research on
how to work with utility customers in general, but I focus on low income customers, because they are sort of -- I wouldn't say an overlooked, but they're a difficult to work with constituency, and they're very diverse.

So a little bit of information in Illinois. This is available on the PowerPoint, and I'm not going to go through it line by line, but this shows how many different ways you can define a low income customer.

I also add moderate income into when we do service provisions or when we design our programs. Moderate income would be anywhere from 80-to-120 percent AMI, and what they -- they typically have some of the similar problems, higher utility bills and higher monthly bills for their rent, but also are not able to take advantage of a lot of the subsidies that are available to them. So they're a constituency that's often overlooked by utility incentive programs as well.

There are a lot of, obviously, households in poverty in Illinois. One thing you see
is that there's an increasing amount of single
working mothers with kids in poverty in Illinois. So
there's a real need to develop products and services
that actually reach them as well and to take into
account what their user experience is.

So about 40 percent in a typical
utility might fall into this category of low and
moderate income, and many are under the age of 50.
About half of utility customers that pay a bill are
under the age of 50.

So digital adoption for low income
customers is slightly behind. Where you would see an
upper income customer -- basically everybody in this
room, if you have a feature phone, I would be
surprised. Most of us have smart phones. And the
digital adoption for low income customers is roughly
around 70 percent at this point that have smart
phones.

One thing you will note about
smart-device use in low income customers is that that
is their primary means of getting on the internet.
So when we think about a low-income customer having a
feature phone that only does texting, that's not really the case anymore, because it's very hard to be in this world without the ability to get on the internet. Most low-income customers do not have home internet access. They have one device, usually their phone that they use to get on the internet. Many of them use their phones, about 7 percent, to apply for jobs.

So not reaching them correctly is actually disenfranchising them quite a bit, and you do tend to see adoption levels lag, but they're very small lags, about 7 percent behind what you would consider an upper-income customer.

So as smart-device use increases and continues to increase, you typically see about 7 percent lag for low-income customers.

Mobile phone plans have changed a lot. I'm sure all of you remember the days when we had to pay 20 cents to send a text. That's no longer the case. Everything is pretty much flat, and sending a text is free at this point.

A lot of customers in low-income
space way back when texting was costing money were obviously paying for that directly, but they have switched to what's called over-the-top apps. So if you use Facebook Messenger, if you use What’s App or another app that actually downloads through messaging, you're using the data plan that is on your device. So most low-income customers that have smart devices use those kind of services.

COMMISSIONER ROSALES: Is it monthly?

MR. KEVIN DICK: Monthly, yes. So a typical price for a basic smart phone plan has stayed about the same, and what you're seeing is smart -- I'm sorry -- utilities providing data plans that are increasingly, you know, more.

And basically, instead of making money on texts, which they have in the past, they're making money on selling more data. So a lot of customers are using their data plans.

The way to get around paying for a text in the past, they have used over-the-top apps like Facebook Messenger, What’s App. We see a lot of that.
Smart phone device purchases are flattening. This means that basically the population that has a smart device that was going to buy into it now has one and now it's just replacements. So in the two-to-three-year replacement timeline, you're eventually going to see all of those feature phones go away. So the 20 percent or so of customers who still have feature phones are now over the next five years or so going to fall off. Everybody will have a smart device essentially.

And user engagement has increased as well. This is actually a great -- this data is from a great internet trends report that comes out every year from Kleiner Perkins. So you can feel free to keep up with this if you want to. You'll see that we're steadily increasing the green bar, steadily increasing the amount of time we spend on our smart devices. So, again, reaching customers requires you to engage with them and their smart devices.

Here you see the most popular messaging apps. This is around the world. What's App is more popular in other countries than it is
here, because of the way that carriers have charged
for texts here versus other countries. But Facebook
Messenger is probably what most people use to send
and receive texts.

Increasingly what you'll see is,
especially in low-income customers, they tend not to
have IOS devices. So about half of all customers
have IOS devices, smart apps, or smart devices. But
in low-income communities, it's almost entirely
Android, because it's cheaper to get an Android
device than it is to get an IOS device.

So what you are increasingly seeing
is the native messenger on Android, which is called
Android Messenger, which is becoming the choice that
people are using to send and receive messages.

And then what you're also seeing is
better user experience. So we saw earlier a sample
text with the firefighter. A good example of a text
message where you can only send 60 characters. You
have to shorten everything to get it to be where it
needs to be.

User experience for messaging is
about to take off in a big way, and you'll be able to see a lot of what you call user interfaces, the ability to converse back and forth and have a real conversation with somebody on the other end is actually a good experience and doesn't require reading a lot of text.

So what we spend a lot of time on in designing our interface is making sure it's readable. We do a fourth grade reading level. We make sure that the interaction is designed in a way to improve the customer's ability to act and to get them to do an action.

And you'll see a lot, as you probably already have, increasingly with social media apps like Facebook Messenger, you see purchases happening. So payments are starting to go up in messaging as opposed to going to a website and making purchases.

So the tech adoption curve is going to be quicker than any of us expect. This is a good draft again from that Kleiner Perkins report. It shows you how quickly things have changed over the
past 100 years. You can see with the computer era since 1977 when I was a little baby, you see a lot of adoption curves have been a lot quicker. So I think you're going to see the same thing with smart devices and social media going forward.

Thanks.

MR. TY BENEFIEL: Thank you for having me as well. My name is Ty Benefiel. I'm the Co-Founder and President of MeterGenius. MeterGenius is a digital energy platform. So our goal is to help energy companies engage with their residential consumers.

I did not come from the energy industry, so one of the biggest, you know, most shocking statistics that I have seen, and it's really what led us to create this company, was that the average residential utility customers spend about 35-to-40 seconds a month engaging with their energy company.

And it's really -- again, not coming from the energy industry, I think, well, how can you get -- build any kind of customer satisfaction, any
kind of dialogue with the customer. How do you get the customer to do anything other than maybe pay their bills with 35-to-40 seconds of engagement per month. And that was fine; right? For the last 100 years. But now we know, as everyone in this room knows, that's changing; right? We are in the midst of a transition in this industry, and one that requires the customer to be much more involved.

So what we're doing is we're helping energy providers start that dialogue by creating that digital engagement and driving overall customer satisfaction, energy efficiency, and participation in other and all kinds of energy efficient products and services that the energy provider offers to its customers.

So I've got a slide here of results, but really, the two main stats that I want to highlight are the fact that our users, so energy providers' residential customers, spend 20 minutes a month engaging with the web and mobile apps that we build for our clients. So about, like, a 3500 percent increase over -- over what was happening
before. So there's a huge improvement in digital customer engagement. It is a deep engagement.

Customers -- half of our users, almost half of our users are answering over 100 profile questions, you know, information about how they use energy, how their home is set up, but also psychographic information, what motivates them; right? What motivates them to change.

And understanding that kind of information, you start to understand your customers better, and you can better communicate with them and build that overall experience. You can involve them more in what you're trying to accomplish.

The other stat that I just want to highlight on here, and this is a big one. I think this one shocks energy people probably more than any of the other stats, is that our users spend just 4 percent of their time looking at usage graphs. And I think a lot of utility applications focused on the usage data; right? Because energy people like to see graphs, Excel spread sheets. Normal people don't.

I just want to -- when building out a
digital customer experience, if you really want to drive customer engagement, you've got to build something that customers want to engage with, and that purely comes, my understanding, from understanding what the customer wants and being able to deliver on that.

MS. RITTA MERZA: All right. Thank you all very much for your presentations and your introductions.

To dive right into the discussion, I will pose my first question to all of you. Do you think the energy industry struggles with promoting the value of investing its smart apps? Why or why not?

MR. DEEPAK SWAMY: I'd like to just add one perspective on that, and from what we see in working with a number of utilities across the country is that there's a change in when utilities look at technology from long cycle investments in software platforms that were mostly monolithic in nature, so you have essentially one source from top to bottom vertically integrated software provider, and the world of apps,
for example, is where you have a lot more providers.
So you see a shift from sort of this monolithic perspective to a best of breed.

So all best of breed means is find the best application and find the best provider to solve the specific problem that you are trying to solve. And I think that's the general trend you see in software as a whole. It's moving from delivering a CD to being provided as a service. It's moving from monolithic to being provided by a number of best-of-breed providers.

So the only challenges we see -- we haven't seen them at NationalGrid, but certainly at other utility companies that we speak with is how do they deal with this new world of software as a service, edge computing, apps, how do they pay for these, how do they rate justify those investments, and they're used to doing things in a certain way when it comes to conventional software. But certainly when you come to apps, there's some new business models.

There needs to be room for utilities
to partner and innovate with a larger ecosystem of providers than they have been used to before, and that presents some unique challenges. And I just maybe want Mike to add his perspective of what was the reason why -- you know, the challenges you saw and then the advantages of partnering, Mike, from your perspective.

MR. MICHAEL McCALLAN: So actually, coming from the utility and spending those 34 years, we're not real fast-moving innovators in many cases. Our challenge with our leadership to us was to be more agile, more nimble, to bring speed to these applications to get them out quicker. We tend to overthink things. We're all engineers, and we build systems, and we try to do it internally, and it takes longer to do that.

But we found by partnering outside to give that idea, they bring this freshness to the utility industry that allows us to be more agile, to look at things a little bit differently, and obviously, make it more user friendly, those apps.

It's a mindset, it's a change, and
our leadership has really pushed us to think that way.

MR. TY BENEFIEL: Just to add on that, I think Mike is 100 percent right.

One of the difficulties that utilities have with promoting, you know, any type of program, smart program apps, anything, is just their ability to communicate effectively to customers; right? I think, most utility people are engineers just like Mike said; right? I mean, that's the core company. That's the type of person for the most part that works at utilities.

Utilities haven't had to be customer centric; right? For the last 100 years. That's changing or that has changed. Developing that skill set is hard to do, and that's something that they're having to be forced to overcome at this time.

MR. MICHAEL RUTKOWSKI: So as far as struggling to make those decisions regarding smart app investments, as a utility customer, I hope that -- and I do believe that utilities are making very careful, deliberate decisions about investments.
As far as struggling, maybe not, but I think as it relates to being very mindful with capital investments and use of their funds for operations, utilities are pretty good at doing that over the years, and that's one of the things that we do is help utilities understand what are the costs and benefits of the various investments.

I think as it relates to smart apps where there is a clear benefit that can be shown very quickly, it's an easy decision. We've got utilities that we're working with that have deployed mobile applications for field force activities that linemen were already doing.

So, for example, the trouble men or the first responder utility linemen had a responsibility to and they do have a responsibility to provide information on the cause of an outage when they're addressing it as well as the estimated time of restoration or ETRs. But that was previously an activity that was done somewhat manually. They would call that information in or go back to their truck and enter it into the mobile data terminal.
Simple application. It's basically exchange of information, homegrown utility application where the linemen can provide that information very quickly at the site.

So that's an example of sort of better, faster, cheaper, something that needed to be done already, and a smart app, a very simple, low-cost smart app was able to provide that.

I think another application of smart apps is where the benefits are harder to quantify and measure as it relates to customer engagement. What's the value of customer satisfaction. What is the true value of improving reliability. Those are trickier business cases to make.

But in many cases, the costs are going down significantly, and we're seeing a significant partner network form that can help utilities defray significant upfront capital costs and moving to cloud technology, moving to partners that have already put that investment in, and being able to provide these type of services at a lower initial vestment.
MR. KEVIN DICK: I'll second everything that everybody said so far.

My experience as a third-party app developer with utilities is the ability to provide a user experience to an end user is somewhat hampered by the systems that are available to a software provider.

So a great example is the Green Button service is a wonderful way to get data, but from a user experience standpoint, it's still difficult -- and this is not just in Illinois. It's throughout the country. It's still difficult for a third-party software provider to tie into it and provide a user experience to their end user that is what they would expect out of a typical program that you use every day like Facebook.

So I think there is a need from a utility perspective to be allowed to provide what are called APIs that are much more user friendly to developers to then engage users, and there needs to be a little bit of thought in that ecosystem and how to make sure you're not just letting anybody into a
utility's services, but that there is a very good and seamless and frictionless user experience so that these apps are able to actually do what they set out to do.

COMMISSIONER ROSALES: Ritta, I received permission from Commission Palivos to jump in.

CHAIRMAN SHEAHAN: That's an inside joke.

COMMISSIONER ROSALES: No, I did receive permission, and I want to thank Commissioner Palivos for putting this together. I mean, she's one of the youngest Commissioners in the country, and this is something that, you know, when I came on in 2015, we still regulate land lines. So this is fascinating for all of us, and I appreciate the breadth of newness in doing something like this that we've never done before.

My question is, from a utility perspective and, Michael, you talked about the lack of speed, but utilities in -- as a Commissioner, enjoy the website, because that's their website. So when we speak to utilities, they like moving their customers to the website in which they regulate --
that's their website. So regardless if it's Aqua Illinois or ComEd, that's theirs and that's their property.

On the Apps, the Apps tend to be numbered and there's more than one, and which one do you go to? Is there a specific one for Aqua Illinois? Is there a specific one for ComEd? There's also a website -- also apps that will talk about energy, but they're not really specific, and they tend to then kind of separate and become not clear.

Is that ComEd's -- and so there seems to be some confusion there. I don't know if you want to talk about it, or if this has come up with you. I see everybody is nodding their heads. This is not the first time you have heard this.

Where do we go from here on that? Is there going to be one website, the ComEd app, or are there a bunch of apps, and we just go from there, and you can't control it because of the internet. I don't know. That's why I'm asking.

MR. MICHAEL McCALLAN: We've certainly --
you know, it's frustrating for our customers, especially during a storm when they have no power, that we direct them to the website. The battery is dead on their laptop or home device, and as mentioned earlier, they're using mobile apps, and it's difficult to see a website on your phone.

But we've seen a transition where people are now -- we don't direct them to the website. I always give them an option. But more and more usage around our app, our mobile app, that gives them the outage information. It's easier to read. We get a lot of feedback on the use of it, and we're constantly improving that so there's less clicks and it's easier to read, and they can get that outage information they're looking for, and they can report an outage. They can see the ETRs. They're all in that mobile app.

So I think if we transitioned away from the websites -- of course, we have the websites, but the mobile apps tend to be more used now. We've seen that since 2012 when some of our major storms -- to even last year. We had four nor'easters in the
month of March that just dumped a bunch of snow in the New England area. The mobile app usage that we tracked is much higher. Even social media. People are going on Twitter, on Facebook, Instagram. All of those are part of our plan during an emergency to communicate with our customers.

COMMISSIONER ROSALES: So you're telling me there's one app? There's one app for ComEd? There's one app for People's Gas? So regardless of what you all put together, there's just one app. One app for Lyft. One app per utility; right?

MR. MICHAEL McCALLAN: Correct, yes.

MR. KEVIN DICK: From my perspective, especially with low-income customers, we tend to see a little less interaction with native apps. People tend to interact in the channel that they're used to. That's why we designed our application to go over SMS or Facebook Messenger or whatever messaging service they want.

I think you can extend a brand and get that effect and not have to push users to the application that you're trying to get them to go to.
So it can be a native app. That's where they want to go. We can also have an app to your point through social media, which is the same brand, but it's extended through a different channel.

I think what you'd find is -- all of us use apps every day. Most people tend to download and install native applications that have a social media or banking or a functional reason behind them, and if they use other apps, it's usually a game or something like that.

Depending on the user, they may not have a lot of space on their phone to download native apps, and so they may not -- if it doesn't have a value proposition that they directly engage with, they may download it but then delete it later on. I'm sure we've all had that experience.

So I think extending the brand is important and that can be done with third-party services. You can be using a ComEd branded app that is run by Benchley (phonetic.) They provide that.

So I think that there's kind of an adage in software development that if you're going to
develop an app, you want to do one thing really well and not try to do everything all at once in the same channel, and I think that there's an ability for a utility to partner with third-party app developers to extend their brand.

So that's my two cents.

COMMISSIONER ROSALES: Thank you.

MS. RITTA MERZA: When talking about integration, how important -- you know, since we've been talking about integrating different systems and different apps, how important is the use of integration with enterprise systems, asset data bases, outage management systems, and other kind of systems, and what are the challenges?

MR. DEEPAK SWAMY: I just want to make one quick comment on that, which is to -- regarding integration, as a provider of applications to a utility, you come in and there are existing systems that are already in place. So the simple analogy I can give about the types of applications that iRestore works on are determining in the network what's broken, where it is, and then determining...
where the resources are that can fix those problems.

    So in some ways the problem we're solving is similar to what Uber does in the transportation world, which is determining where there's riders and matching those to available people that can provide a ride.

    So along that same analogy, when you have damage to the utility network, you need to be able to then determine exactly where that damage is, what the nature of it is, whether it's during a storm or during blue sky, and then be able to match available resources to that.

    So that's one of the big problems that we look to solve. And in solving that problem, you do need access to existing information that, whether it's the mapping information about where the circuits lie and information that -- a lot of that tends to be within utility GIS geospatial systems.

    So I'll let Mike maybe touch really briefly on that. Certainly, there are opportunities to integrate with third-party systems. From the app
developer standpoint, there are very few barriers, because most modern app developers build technologies that use automated programming interfaces. Think of them as a simple utility plug that you can plug into other systems with. So on the app developer side, it's usually very easy to plug and play with other software providers.

Where the problem comes is what I was talking about earlier which is the monolithic system providers that have five-year cycles compared to an app developer that is running in cycles of weeks or months. So there's a mismatch there.

So usually there's a phased approach. The answer to that is usually developing a phased approach to integration, a pragmatic approach to integration that says you're not going to start on day one being 100 percent integrated with everything, but you're going to build a roadmap to how you're going to then integrate with all the systems that you'd like to integrate.

MR. MICHAEL McCALLAN: Thank you.

One of the apps that we developed is
called iMap, and it's an integrating mapping application portal. By phone or by iPad, our supervisors now have all the GIS information. So first responder information gets pinned to a map. Damage assessment gets pinned to a map. Critical facilities gets pinned to a map. The outages, if it's a tree-related call versus a no-power call, it's all on our map, so they have access to this.

It's part of a supervisor enablement program that we did to give more situational awareness, more information to the field. When I started it was notepads; right? And they were stuck in your back pocket, and you had Excel spread sheets and all kinds of different information sources and different computers giving you that. It would take a long time to do that analysis.

But now, allowing the supervisors to have all this information in one view, they can quickly act upon it.

I saw this in a real event we had a few months ago with a number of supervisors. We had a crisis in Massachusetts with another gas company
where they had, you know, home explosions from overpressurization, and as the electric utility, we had to go in and de-energize areas and re-energize areas, but supervisors I have known for years, I saw them with their iPads, you know, quickly getting the information about the outage, what was going on, looking at the Google view of it with the pole where we could isolate. So it was really great for me to see how they adapted quickly to using the app and getting that information.

That information is -- it's everyplace. We have all these different systems, but pulling it all into one place has helped us out a lot.

MR. MICHAEL RUTKOWSKI: And just to add to that, I would say, utilities have challenges with integration in general. When you look at advanced distribution management systems, which is really tying together the distribution management system to operate the relays and switches on the electric distribution system with the outage management system, so identifying where the outage is, how to
best dispatch the crews, and all of that across the geographic, geospatial information system, the mapping system.

Being able to tie those together and then provide information to the customer information system so that, you know, customers can receive those communications about outages.

That's really, I see, where the major integration challenge is. When you think of the smart app, it's really kind of the last mile of getting information to and from customers to and from the field.

So it's a great tool to be able to transfer information at the point of gathering it into a system that already exists. That information is already being entered, acted upon via some other channel, and what the smart app allows is really the ability to get it more accurately, quicker, at the point of occurrence, and those last-mile integration complexities are much less than those of integrating the major systems.

ACTING COMMISSIONER PALIVOS: So you all
kind of briefly touched on this, but what are some of the factors that are crucial and necessary to have a successful partnership between tech companies and utilities?

And as a second part of the question, if you can share some success stories or what you have seen go on in other states.

MR. TY BENEFIEL: I can speak to both of those.

So I think willingness to try new things; right? And there's kind of two parts to that; right? So there's, you know, executive level champions of innovation; right? That's a big part of it.

But the thing -- and this is missing, and this is -- if I can make one kind of recommendation here today, it would be to better develop the logistics of actually running pilots; right?

You know, even if there's a lot of championing of innovation, it still, you know, might expedite the process of getting in, but there's still
a lot of hurdles that startups face when launching a pilot, even a small-scale pilot with a utility. The amount of time it takes and costs it takes to actually launch something often is significantly more than the length of the pilot or the cost of the pilot; right.

So developing almost a testbed, having a subset of customers who are willing to maybe forego some of the security requirements, things like that, to enable innovation -- enable innovation faster and test faster and, you know, fail possibly faster would improve a lot of, you know, the innovation cycle.

So where that's happening in not -- in other industries, so in, like, competitive retail energy where they don't face a lot of the same regulation as utilities do. They're able to test things faster, and that's purely because they don't have some of the same restrictions.

So I think if there's going to be true innovation on the utility side, there's got to be a faster process to get some of these things out
MR. DEEPAK SWAMY: I think I'll just add a couple of things to what Ty said, because his comments on innovation, I mean, being a provider of apps to the utility industry, one of the things we learned very early on is that when utilities look at innovation, and certainly there is a lot of -- there are a lot of headlines in industry press about innovation and the importance of innovation at a very senior level in the industry around the country.

When they think about innovation, when you look at outside utilities, you look at banking or high tech or finance or insurance, those customers, those enterprises, when they think about innovation, they're not necessarily thinking about how are we going to build the greatest mousetrap inhouse. They're thinking about how do we build ecosystems of partners that are going to help us innovate faster, better, provide a better service, more reliable service to our customers.

So the whole mindset of partnering with companies on the outside that can bring
this very unique set of capabilities, user
experience.

Kevin was talking about that. In the mobile world -- in the PC world, companies built systems that users had to learn. In the mobile world, companies build systems that learn the users; right? So that's the main change or the shift in the computing technology.

So more and more app developers are creating systems that learn the user's context and location and have the intelligence to provide the user the information they need to do their jobs. So rather than, you know, a Microsoft Office on the PC world that does everything for you, you know, the apps on these types of devices are going to do one thing really well. Take one business process at the utility and do it really well; right?

And the example I'll take going back to our First Responder app which has three components. The First Responder app that we currently have about 4,000 first responders across four states using currently to report electric and
gas damage in to their utility, they're trained and
on-boarded by the utility and solutions licensed by
the utility. There's a portal that's used by the
utility within their control room or storm room, and
there's an app in the hands of supervisors.

And then maybe, Mike, you can talk a
little bit about when we started with that journey,
you know, they are the same question. Why do I need
an app? So those supervisors who have been doing
that job for a long time resisted initially that
rollout.

But really, it's all about
understanding and working -- so two things, Mike, one
on the partnership and adoption of the app by users
in the field. If you could comment on that.

MR. MICHAEL McCALLAN: I think the
partnership is really important because -- let me go
back to why I think it's difficult for utilities to
get that. We tended to have the ideas, but when we
bring them forward, again, we overcomplicate them,
and they become million dollar apps. And then that
idea is no longer there, and what's done in the past
now is that those same people that have ideas, you know, it would be kind of cool to have an app, they don't bring them forward. There's a resistance there.

And our company, our leadership is really saying, we're opening those doors. You have ideas. Let's present them. Let's not necessarily have a business case for everything that we do. Our First Responder app wasn't around cost savings or restoration. It was around collaboration with the first responders.

So, you know, real soft dollars there. But we found that there are benefits. There's some hard savings there as well and benefits around response. But we approached it a little bit differently.

So it's having that mindset at a utility about cultivating the people that want to use these things, bring the ideas forward, and then having that agility and speed to get it to actually happen and be implemented.

By partnering with this case with
iRestore, we found that they had great ideas, and they listened to us as a customer, and we were able to move forward with these very rapidly. You know, I'll say the costs were very attractive compared to if we had done it inhouse.

CHAIRMAN SHEAHAN: Mike, you mentioned some organization inertia that constrains innovations. Is there regulatory inertia as well that intervenes?

MR. MICHAEL McCALLAN: Not in the states that we deal with. In fact, when we brought this, we weren't told to do this. We weren't ordered to do it. We did it on our own, and we presented it to the different stakeholders and to each commission and staff and divisions across the different jurisdictions, and they welcomed it. Because what we did is we talked about how we could improve the collaboration with the first responders and municipals that we deal with.

Similarly, I don't see any pressure, you know, from staff telling us not to do it or why are you doing this. Never encountered that at all.

MR. KEVIN DICK: I think it's a little bit
more problematic from a regulatory perspective if you're dealing with the end user, the customer, because there's a protectionist -- especially I deal with this with low-income customers. You don't want to cause harm obviously like that, and oftentimes, it's hard to know what a product is going to do until it gets at least a few thousand users at scale, because you need to able to user test continuously and usability test and application to make sure it's delivering the value proposition that you want it to deliver.

So oftentimes what I run into with utilities is not an aversion doing it. They see the value proposition, but then in the back of their head, they're like, what's the risk, what's the regulatory risk here, what else do I have to deal with, is this going to cause questions, how are we going to answer those.

So there's a very long period of time from the time that they decide this seems like it's going to work out that we're literally setting the table for regulators so that they don't have to
answer questions. And I think that is necessary, because, obviously, we do run into situations where end users, customers, disadvantaged customers certainly, end up working with products and services that don't necessarily have their best interests at heart, and then the regulators do feel some responsibility for that.

I think having an open dialogue, to your point, Ty, there is a willingness to do pilots in a small setting that do have some risk associated with them, but it's calculated and controlled risk through tests and rapidly fail if something is not going to work out is a huge benefit.

And to that point, I think the utilities, themselves, have to have the services in place to be able to do that. So again, I go back to Green Button. It's a wonderful idea to share utility data with -- that an end user gives permission to an app developer so you can use real data in your development. There's no substitute for that.

To get there is a huge effort, a huge build, and there's not much of an inclination for a
utility to build that out unless they're encouraged
to do so. Because there are costs in managing that
service.

So having the ability to have staff
internally that run and manage those APIs so that
they are robust enough for an app developer to
actually hit against is an important part, and they
should be able to recoup those investments, in my
opinion.

MS. RITTA MERZA: Kevin, Ty had a very
interesting slide with a lot of great information and
data. Do mobile apps inherently help low-income
customers just by their nature, or does data like
that help serve low-income customers and end users
better?

MR. KEVIN DICK: When you develop a piece
of software -- I don't know if you guys all know
this. It might scare you. But you can get a lot of
information about a user as soon as they log on. And
you don't -- if your value proposition is to sell
that data, then that's not a very good business in my
opinion.
But you can use that information to deliver a better user experience to a customer, and especially when you're dealing with low-income customers, that's very important, because you may be dealing with literacy issues. You may be dealing with a customer that has a prepaid phone and moves around a lot, so you have new phone numbers you have to deal with.

And I think that there are -- a lot of that information is very valuable to deliver the value proposition that you're trying to develop. We tend to look at that from a regulatory standpoint as a problem that needs to be dealt with, but as long as there's clear guidelines around how that information can be used, I think it can be used to provide more benefit, and you're basically showing your statistics. Those are things you then go back and use, okay, well, people are responding to this. I'm going to build toward this value proposition for my end users.

So it's very important we're able to get that information, and it's important for
utilities as well.

RS. RITTA MERZA: Ty, when you collect data like this, how do you use it?

MR. TY BENEFIEL: So we utilize the data to personalize the experience for every customer. So if all of you were to download one of our apps, every one of you would have a different experience; right? Because you may value different things, you have different home characteristics, how you use electricity, things like that.

The personalization, that's the key to user experience, is to be able to personalize it for that customer, so that the information presented is relevant and actual. If you receive a bunch of information that is not relevant to you, then you're likely to uninstall the app; right? But if the information is -- seems like it's tailored exactly to you, then you're more likely to use it in the future.

So we collect a ton of information. It's all -- most of it is user generated. We ask a ton of questions, and users are willing to invest the
time and information providing those answers, because it does improve their user experience; right?

As long as they see value in what they're getting in return, customers -- they are willing to provide more information to you. It's just really, you know, what do you do with that information.

MS. RITTA MERZA: How does it apply to first responders or other end users maybe?

MR. DEEPAK SWAMY: So I think ease of use and user experience is just as important for first responders. Mike talked about that a little bit. I mean, it's extremely important. If you want users to use your app, if you don't want to end up what's known in the software industry as shelf-ware where you develop this great software, but it's sitting on the shelf and nobody uses it, if you want to avoid that scenario, you do want to build software that users, you know, enjoy using, that has the system personalization that Kevin and Ty talked about, very important in all that.

We spend a lot of time in this -- and
that's the thing that I wanted Mike to touch on is
that it's not an easy journey. So they say great
software is built on empathy, so it's really
understanding what the user is going through.

When we started iRestore, one of the
members of our strategic advisory board narrated a
story where they had a couple of their field workers
that were so frustrated with the technology that they
had to use at the time, that they flung their
Panasonic Toughbooks -- I'm sorry -- flung their
computers out the truck because they were just so
frustrated with the technology.

Providing an ease of use, you know,
it's hard to make it easy, and so it actually
requires a lot of focus on design and not just
development; right?

So as engineers in the industry, we
tend to very quickly get to developing things or
building things, but, you know, here in Chicago, as
you can see, design is important before you start the
work of development, and that experience specifically
when we rolled out our First Responder app, we built
a second app that we rolled out for all the crew supervisors. There were hundreds of supervisors that work at NationalGrid and use it now every day. Initially, Mike, they didn't want to get it.

MR. MICHAEL McCALLAN: They didn't want to use it. Until they started -- you asked people, have you opened it yet. And then we started looking at how many users we had, and more and more people started using it.

We just -- we had a damage assessment app that was home grown, and we did it relatively inexpensively, and it was on an iPad where we could do damage assessment, and it was built by engineers. So it had a lot of drop-downs, and you had to go to another drop-down and another drop-down, and we just completed the app rollout of a damage assessment tool from iRestore that is just pictures. It's a picture of a pole or a tree. You just click on it and get the information as quickly as possible.

As utilities, we try to capture too much information, the age of the pole, and during restoration when you're doing damage assessment, it
doesn't matter what the age of the pole is. We can get that information later. We're trying to do this as quickly as possible.

I always said we used to measure storms in weeks and days. Now our company measures them in hours. Unfortunately, our customers measure them in minutes. So those expectations have changed. We need to get information back to our dispatch, back to our crews and our supervisors as quickly as possible.

So to streamline -- by using these apps to streamline the process, we're able to get the information back sooner so they can make those decisions. In many cases, the decision was already made without having the information.

MR. KEVIN DICK: I'll second the design shout-out, because I think one of the things that engineers -- I have a science background, so pretty much an engineer. You tend to build toward what you think your user wants, but until you actually sit down and talk to them, you really don't know what that is.
And then you might think that you've got the interaction correct, so you build that, and then you get it out to a number of people, but it may not work exactly the way you want it, and you need to be able to know that that's exactly what's happening so that you can adjust and deliver that value proposition better.

My wife is a designer and works in the educational publishing industry, and one of their big issues doing the same conversion going from textbooks to digital has to do with the fact that what they found with their users, and a lot of them are teachers, is the teachers are not really using digital the same way they do with textbooks. They're actually designing their own curriculum, which is obviously a big problem from an educational publishing standpoint.

So their fix for this is to literally go down and sit with their teachers and work with them to design their products, and I think that the utility industry can really learn from this approach.

We did this with IDO before we coded
a single line. IDO is a design firm. We hired them and did three months of user research and concepting and prototyping before doing another three months of higher fidelity prototypes before we built a single thing.

And I think it's important to really understand when you're doing development of apps, that the user is first. They're the most important piece of this, and that depends on if it's a firefighter or an engineer within your company or if it's a low-income consumer. Those are decisions we need to make.

Trying to design for 3.9 million utility customers a one-size-fits-all program doesn't work. So you need to know who you're trying to deliver value to and provide the ecosystem for them to do it. That gets to Ty's point a little bit about how do we make the ecosystem so that it works quick, so that we can get out there and test and design quickly and fail quickly if we need to shift.

MS. RITTA MERZA: All right. I have many more questions for you, but the time -- we are now
out of time.

On behalf of the Commission, I would like to thank our presenters for educating us on the current apps on the market, how they benefit utilities and customers, and giving us these interesting presentations.

Please join me in a round of applause.

(Applause.)

MS. RITTA MERZA: And we will now take a ten-minute break.

(WHEREUPON, a brief recess was had.)

ACTING COMMISSIONER PALIVOS: Welcome back.

I would like to again thank our panelists from Panel I for sharing their insights and perspectives on mobile smart apps for utility operations.

To lead our next discussion, I would like to introduce Emily Brumit, my other Legal and Policy Advisor. Please join me in welcoming Emily.

(Applause.)
MS. EMILY BRUMIT: Thank you, Commissioner Palivos.

The purpose of this panel is to discuss policy considerations for utility smart apps. Before we begin, I would like to introduce our panelists. Today we'll hear from Jen Mesenbrink, Manager of eChannels at ComEd; Dave Kolata, Executive Director at Citizens Utility Board; Ellen Rendos, Director of Credit, Collections, and Remittance, at Nicor Gas.

Please join me in welcoming our panelists.

(Appause.)

MS. EMILY BRUMIT: And, Jen, you are free to begin your presentation.

MS. JENNIFER MESENBRINK: Thank you for the opportunity to come and present to you today.

I need the app for that.

First, I'd like to go over a couple of slides to give you a sense of some of the new technologies that ComEd has deployed in the last two years or so. And they're all in line with our goal
of the premier customer experience. One of the
previous panelists mentioned that we weren't quite so
customer-centric in the past. But right now, this is
like our living, breathing purpose every day.

One of the things that I wanted to
talk about was the new mobile app that we launched in
2018 for our customers, and it's got some pretty
exciting capabilities in it.

For example, you can log in using
facial recognition and touch ID, so fingerprint
log-in. You can also save your credentials so it
remembers you the next time you come back. A lot of
people struggle to log in. We do have continuous
guest now built into the app, so folks do not have to
log in to the app.

Also, you can see in that first
little screen shot, they can see their usage data
down to the hour if they have a smart meter, and most
of our customers do now have smart meters. They can
see an analysis, the bottom right there, of how their
usage compares to weather and number of days in the
month so they can see why their bill may be
fluctuating.

And lastly, they can pay their bills with slide to pay, and they can even scan in their credit card with the app to pay their bill.

And then on the next page, we talk about the additional functionality, the AMI OMS meter paying functionality in our lingo, but essentially, it allows customers to ping their own meters from the app. So they can go into the mobile app, and it will check whether their meter is energized or not, and then if it isn't, it will help them automatically report it to ComEd. Since it became available in February of 2018, 317,000 meter pings have been recorded using this functionality.

And then just a little side note for all of you on how the mobile app was created, what made it a little different. We decided we wanted to shake things up with this mobile app project. We didn't want to go in Waterfall and go down the usual kind of project route, and we also pursued it with the Exelon utility. So we were with Baltimore Gas and Electric and PECO as well. We all developed it
together.

We decided to partner with a really kind of scrappy agency out of Baltimore called MindGrub. They have a very different approach. They have worked with Wendy's and Underarmour, the Smithsonian, a lot of different companies.

And we also decided to pursue the agile methodology, and you test, user test, in between -- in sprints, so you can get customer feedback all the way throughout the entire process, and it's great, because it course corrects as you're going through, and you get that feedback and it helps you dictate the way that you take the app.

And lastly, we had a really diverse team with our app, and it did win several awards, which are listed on the slide, for customer experience which was really what we were gunning for with this process.

Another new app that's out, this is a very small-scale pilot. This is for Bronzeville, seven zip codes around Bronzeville only, the Save and Share app. And what it does is it encourages
customers to find ways to cut their own energy use, and any money that they save in their bill, they can donate it to various community organizations.

So like I said, this just launched in August. It's a very small pilot. Right now they can donate to Chosen Tabernacle Ministries, Bright Star Church, and 51st Street Business Association in Bronzeville.

We have another app that's internal only. This is called Udentify as in you identify it. So it's internal. And so employees who saw problems, like they were in the neighborhoods, and they would see issues like broken braces or vines growing on transformers, that type of thing. They can flag them back to the company for repair before they became a real issue for the customer.

The app launched in January of 2017 and submitters have reported 452 valid issues that have been addressed before they caused a problem for customers.

And this one is -- it's not out yet. So you're getting a sneak peak here. The visual
voice project is tying together three of our existing technologies. So it's bringing together our website, our IVR, which is the phone system, and SMS technology.

So, for example, let's say you're going to rent an apartment in the city and you need to start your service, and you call 1-800-EDISON-1, and you'll be prompted -- if you choose to start service, you'll be prompted. It will ask you, would you like me to send you the link so you can fill this out online while I talk you through the process.

So it will text them a link, and it will be a personalized link, and it will take them right to the signup sheet, and they can get advice, little prompts verbally over the phone while they're filling it out on their smart phone, and then, they'll be able to file a start service order through the phone.

This is going to start -- this will be the first time we have start service back in IVR since we turned it off a few years ago because customers couldn't figure it out. So we're hoping
that having this be like a layered approach will help them understand it.

My last slide is -- this one is called IFTTT. It's a little applet. So what it does is it allows customers to -- if you're an hourly pricing customer or a peak time savings customer of ComEd's, both of those are programs where they offer like -- they help you save money with different peak times to drop your usage, for example, in peak time savings.

And so what this applet does is instead of -- instead of you having to do anything, if you sign up for this, and peak time savings starts, it will automatically lower your usage, drop your thermostat. So you automatically save money. I had on the slide 985,000 transactions, but I got an email this morning that it's now a million. So customers have been able to use this a million times.

Thank you.

MS. EMILY BRUMIT: Thank you, Jen.

Dave, you can begin when you're
MR. DAVID KOLATA: Thank you, Chairman. My name is David Kolata. I'm the Executive Director of the Citizens Utility Board.

Actually, I just want to pick up on that last slide, because I think a lot of discussion -- by the way, that first panel really covered things nicely and this was a good presentation as well.

Providing information on outages, how to pay bills, available programs, reporting outages, all of that is really very important, and my sense of it is it's getting significantly better across the utility space.

I don't really have much to add other than user experience is key in designing with the user in mind is the only way that it's really going to work.

But what I really want to talk about is sort of where I think things need to go from a consumer perspective, and that is essentially enabling the set-it-forget-it response to price and
environmental attributes for the IFTTT, because I think that's really a great -- there's really great potential for innovation and consumers.

But you know, my observation here, and this picks up on something, Commissioner Rosales, you pointed out. That this is something that more likely than not the utility is facilitating, not necessarily doing at all, and that by its very nature raises some policy questions that we need to think through. It's really, if you think it through, in the broadest sense, it is this kind of idea of the utility as a platform and how to make that really work from both a regulatory point of view and a business model point of view. How can we enable a third-party innovation while still providing the core services of the utility.

Just a few suggestions on that, and this is picking up on something Kevin mentioned in the first panel. I think it's really important that you have an open API interface. I think that from what we have been able to tell, we're not experts at this, but that's really essential for kind of getting
the ecosystem going that will enable the innovation
that we'd like to see on that, and, you know, really
key to making that work, also, is sort of easy,
seamless, secure authentication. Because it has to
be immediate and quick so that you don't have to go
through laborious steps before what you're signing up
for works.

So I think Kevin brought this out.

What we have heard about Green Button, that it's a
big step in the right direction, but a lot more needs
to be done to really make it as beneficial as it
could be for developers and consumers. So I think
that's an area that we can focus on.

I think ultimately around issues of
pricing information and environmental information,
environmental attributes, I think working
collaboratively with regulators and utilities and
consumer advocates to really streamline it as much as
we possibly can. At some point, we need to get the
folks who really know what they're doing in the room,
because I don't know all the intricacies of why it is
that Green Button is a little slow and cumbersome,
but that's something that I think we really need to focus on, because I think it's ultimately what we want are things to automatically respond to signals. We need to enable that universe, and you know, that's going to really be key. And it does start to get into this question of branding, for example. Is it always going to be under the utility brand? I think in some cases, yes, in other cases, no. I think as you play it out, it's a little unrealistic to think that we even want the utility brand for every single type of device that may come down the pike.

But we absolutely do want the core information that enables that to be available to other companies. And just to give my own personal example, I have an EV now, and I have the ComEd app, which by the way is excellent, and I have the PJM app, which by the way is also excellent. And I have the ChargePoint charger. You know, I can schedule a day ahead pretty easily on my charging based on the environmental prices and real-time prices or environmental attributes. And then I have a home energy monitoring device that may come down the pike.

And it does start to get into this question of branding, for example. Is it always going to be under the utility brand? I think in some cases, yes, in other cases, no. I think as you play it out, it's a little unrealistic to think that we even want the utility brand for every single type of device that may come down the pike.

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realtime price, and on average, I'm getting pretty low prices.

CHAIRMAN SHEAHAN: Could you do that manually?

MR. DAVE KOLATA: It's actually easy to do. You can just schedule it generally. But I want is for it to happen automatically to prices. In particular, what I want, because in ComEd, it's the five-minute price that varies, particularly, what I want is to be able to put in a price that every time it's below a certain amount, it charges. Because this will allow me to hit a lot of negative price hours, to be honest.

I mean, the first month I had the car was May, and it just so happened there were 45 hours with negative prices, and I hit, like, three of them, but I probably could have hit all 45 if I had this application. So I have talked to ComEd about that, and I talked to ChargePoint about that. At the end of the day, it's all technically doable. It's just that right now for whatever reason there's not as much collaboration opportunities or something.
So the IFTTT, which I think ComEd deserves great credit for offering, as I understand, it only works right now with Nest and Honeywell. There are a limited number of companies. That's good, but we want that type of thing to be available to all companies.

I'm not really criticizing ComEd here, because I don't know where the -- exactly how the communication issue breaks down, and I know third-party chargers, for example, may want to monopolize their own data and their own information, and ultimately what we care about is the public interest in maximizing overall benefit for consumers.

And I think enabling -- I think Illinois has gone a long way. I think we're among the better states, I would argue the best state, when it comes to data access, and I think it's good that utilities are required to use Green Button, but we definitely need to do more there. Exactly what that is I don't know, but it's going to be very important particularly as transportation electrifies, which we think is likely.
That's a clear case where everyone who has an EV should be on realtime pricing, and we're going to want that to respond, because we're going to want that to have a variable load, because it can be, and it can be very beneficial for the system and very beneficial for people who don't even have EVs.

But right now, something is going wrong where we don't really have that infrastructure quite yet, and I think that that's an area that we could focus on, and we'd love to help with that, because -- well, my own personal self-interest, but, also, it's what's in the best interests of consumers long term.

CHAIRMAN SHEAHAN: Is that a regulatory problem, or how does that happen?

MR. DAVE KOLATA: I think there are regulatory issues in it. Certainly with how information can move to consumers, there are legitimate and important privacy issues that we have to make sure are respected.

My observation on that is perhaps we
have something to learn from the banking industry on that. That's extraordinarily sensitive information, too. And when you compare some of what's available there with what's available in the utility space, it seems to be a lot clunkier in the utility space, and that's an area that while there could be some regulatory issues, a lot of it, I think, is just sort of a focus on it and working toward a plan that is purely in the public interest.

Because you do -- you don't want the utility to monopolize all this either, because you lose some of the benefits of innovation. And as we start getting on the edge of these types of technologies, they're not things that utilities traditionally had experience in. So I think by hypothesis, they're probably not the best to ordinarily do it, and yet, it's interacting with the core utility system, which they know quite well and need to.

That's pretty much it for me. Thank you.

MS. EMILY BRUMIT: Thanks, Dave.
Ellen, go ahead.

MS. ELLEN RENDOS: Good afternoon. Again, I'm Ellen Rendos. I'm the Director of Credit, Collections, and Remittance at Nicor Gas, and I really appreciate this opportunity today. I was a little concerned about coming, because Nicor Gas doesn't actually have an app for customers. But what I do want to do is share some of the things that we do have and some things that we are looking at.

So currently, Nicor Gas is investing in our website management, in a website content management system, to enhance our customers' digital experience.

Like all the utilities, we have relied on our website. I heard that in the first panel. But we really feel like with a more robust, flexible content management system, we'll be able to achieve some improvements, whether it's with more accurate and enhanced analytics so that we can offer the customers what they want, build additional billing and payment options for our customers, and enhance bill assessment management tools to give
customers more control over their usage -- and I'll talk more about that later -- and ultimately optimize the mobile experience.

A critical piece of our website and our most frequently used and most frequently used by our customers is our My Account, and like all other utility companies, My Account is our online bill management tool to help customers better manage their energy usage and find easier ways to pay their bill.

So currently, our customers make -- at our My Account website, you can make payments with credit, debit cards, and ACH, view your bills, sign up for autopay and budget plans, schedule payments, and one important thing is we allow our customers to set up payment arrangements 24 hours a day, seven days a week without talking to a customer service representative. There's some capabilities to schedule some types of appointments, and for the past year or so, you have been able to chat with customer service representatives.

So I'd like to take a couple of
minutes to show you a video -- you can hit the
button -- that's actually out on our My Account.

(Nicor My Account video played.)

MS. ELLEN RENDOS: So we actually produced
this video a couple of years ago and then updated it
within the past year really to address the diversity
of how our customer base likes to get information.
It was just in response to people learning
differently, liking to watch things on YouTube, and
try to, like, walk them through the process and try
and make it simple for them.

So what it gets down to is what we're
looking at at Nicor is what are our customers looking
for.

COMMISSIONER ROSALES: So how do they find
the video, your customers?

MS. ELLEN RENDOS: It's right on our
website and on our My Account to explain it. It's
not really on YouTube.

So what everyone has mentioned in the
previous panels and things, I think our customers are
all looking for quality experience. Whether that's a
mobile app or responsive website, but we do know that with all the statistics, we know a high percentage of our customers have smart devices and that we need to -- if we're going to satisfy their customer experience, we really need to keep moving in that direction.

You know, we've talked about some of the current functionality that we have right now on My Account paying bills, and looking at bills and paying bills are the most common use, especially for a gas company. We're in a different situation where we don't have the outages. We haven't had to have an outage tool or an app to handle those types of things, which kind of put us a little bit behind the other utilities.

So what we have been focusing on now -- I mentioned before they're doing a whole analysis on our website on the content and how to revise that, including My Account, but also enhancing a lot of our current functionality. Additional -- we're looking at additional billing and payment options that are -- that offer convenience and choice
for our customers at no cost or low cost.

We've put things out there. We've got -- not only can you go to our My Account to see your billing and pay your bill, but we're also -- we also have e-Bills where you can get your bill with just an e-Bill attachment and not have to log on to our site.

We're looking at bringing more of our bills to people's bank accounts because we have such a high percentage -- 35 percent of our customers pay their bill every month at their bank site, and we have some bills available to them, but we're really looking at expanding that.

And then finally, Nicor Gas is currently deploying AMI, which is going to open up a lot of opportunity for us to help our customers better manage and have access to their current usage and efficiency and things like that. So we're excited about that.

And I really enjoyed and appreciated hearing from the panel this morning and everyone here this afternoon. Thank you.
MS. EMILY BRUMIT: Okay. Thanks so much, Ellen.

We will move into the question-and-answer portion now. My first question is, as more consumers explore the internet of things such as smart thermostats, camera enabled doorbells, how can utilities encourage the use of smart devices focusing on energy efficiency?

MS. JENNIFER MESENBRINK: I can take that one.

A couple of things that we're doing at ComEd is we have the ComEd Marketplace. The ComEd Marketplace is a website that we opened up. It just features some of our -- it shows some of the rebates that customers can get, where they can learn about rebates they can get on power strips or thermostats and things like that.

And also, in terms of IOT, we have the applet that we described, but we're also looking into additional -- you know, additional applications of that.

You mentioned kind of opening up
green power, and we do have GPC on our website, but I agree there needs to be additional development of that, but we're definitely looking into options.

MR. DAVE KOLATA: I think that that's really what it comes down to at the end of the day is providing the kind of base information that's going to be very specific involving the home characteristics and your usage patterns, and the more that can be done to enable a third-party innovative ecosystem around that, I think the better off we're going to be, and we just need to figure out the best steps to do that kind of systematically.

I think there's a lot of potential there, more on the electric side than the natural gas side just because of the way the electrical system works, but there's just a lot of potential there to help consumers not only with information, but to save significant amounts of money and improve the environment while essentially setting it and forgetting it, and the more we can do that, the better off that we're going to be.

MS. ELLEN RENDOS: I agree there's more on
the electric side, especially when you get into pricing and things. But we have a lot of energy efficiency activities going on on the gas side and rebates, and our company is very involved with that right now.

And what I had mentioned before about the AMI, I think that's opening up opportunities. It might not have the pricing component of the electric side, but the newer, younger generations and, quite frankly, the whole customer population is still interested in understanding how much gas they're using on a daily basis, and gas has never been that way, and we haven't had that information available.

So people are interested in cutting back and understanding what changes they have made and what impact it has, if anything.

MS. EMILY BRUMIT: Great. Thank you.

Commissioner Palivos?

ACTING COMMISSIONER PALIVOS: I have two questions for the ladies.

Ellen, first, I don't mean to put you on the spot, but you mentioned a majority of
Nicor's customers have smart devices. Knowing that, why does Nicor not have a mobile app yet? And maybe they're developing it, I don't know. But I'm just curious.

MS. ELLEN RENDOS: Well, some of it has -- is because I don't think we've seen as big of a need for it because of the outages. I think that's what's driven some of the electric companies in the past to be able to finance it. Because it did have a payback. You're alleviating the calls into your call center. The more you're communicating with the customers, it is a benefit to the company, too.

So I think it is a matter of costs and priorities of the company and whether our customers would embrace that and spend the time and the capacity on their phones to put an app there.

That said, I think things have changed, and the industry is changing. The availability of apps and the simplicity of getting them done and implemented is getting better, and it's becoming more favorable for the gas companies to look at those. So I would expect that, you know.
But we do have -- when people were
talking this morning or in the first panel, there's
so many things that are on the plate and things the
utilities want to do, and they aren't moving fast,
but they also -- I see it as a lot of competing
priorities with their IT organization. Not just
money, but also resources and complexities of
integrating new applications into your system, and
some of the implications that could cause or impacts
it could have on the call centers in the field.

COMMISSIONER ROSALES: But wouldn't the
company consider the communication with their
customers first and foremost? I don't understand why
in terms of resources that an app would not be a
priority for you.

MS. ELLEN RENDOS: I'm not saying it isn't
a priority. I'm saying there's a lot of competing
priorities of IT changes. So I do think that they
think communication is top priority, and they're
starting more with the website, the My Account, and I
think they're exploring those opportunities.

MS. EMILY BRUMIT: Commissioner Palivos?
ACTING COMMISSIONER PALIVOS: Thanks, Ellen.

This is for Jennifer. You mentioned Udentify where employees can report problems. Do you see that feature being accessible to end users or other ComEd customers down the road?

MS. JENNIFER MESENBRINK: I think that's our ultimate goal is to get it out there. But we wanted to see first -- for example, one of our concerns is that, for example, we say everywhere where we communicate, stay away from downed wires if you see a downed wire. So we didn't want to encourage someone to try to take a photo of a downed wire. Do you know what I mean? For safety purposes. That's just one example.

That's why we rolled it out specifically to internal employees only who already have that understanding.

MS. EMILY BRUMIT: Thank you, Commissioner.

We've talked a lot about apps that help customers better understand their bill and their energy efficiency, but what about apps that help
utility employees feel safer and that make their job
more reliable?

I know that you have mentioned one/app that does this at ComEd, but, Ellen, what about
apps that help employees at natural gas utilities?

MS. ELLEN RENDOS: Yes. And, you know,
currently our resource management FieldForce
application is one of those that gives us this
ability to all of our field resources and where all
the work effort is. So I think that's twofold. That
technology gives us better visibility to the work,
whether it's a Nicor employee or one of our
contractors.

So that's good from a customer
perspective. We're able to answer their calls when
they call into the call center and ask questions
about what work has been done or where those
employees are, where their job is in the schedule
that day.

It also gives us -- it makes it more
efficient to schedule the work, and there is
definitely a safety component to us understanding and
knowing where all the employees are.

Those systems are also integrated into our customer information system. So our call center employees, we are getting and receiving realtime information from what's going out in the field, and that's noted on accounts automatically. It's all integrated together. So the customer service representatives can help those customers out.

There's also a lot of technology, you know, we talk about the phones with screen pops and information whispers into the customer service representative. When they know their next call that they're taking is from the fire department or the police department, it gets them ready for that call, or if it's a customer that's authenticating, the system is able to bring up the next account and help them work more efficiently and more quickly respond to the customer's calls.

MS. EMILY BRUMIT: Thanks.

Jen, do you have anything to add on that?

MS. JENNIFER MESENBRINK: Mainly,
internally, we do have Udentify, but when you mentioned -- there's a couple of other things that aren't necessarily apps that help. So there's also, like, our outage map, which helps customers see where outages are, and our field employees report directly into the system that goes into our outage map so customers can see estimated time of restoral, and they can see -- sometimes there's causes listed. You know, after causes are determined, those get posted. Folks can see general outage areas and understand. So that's another technology that we've got.

And you mentioned apps, and I mean, I think the best example for us is Udentify, but there are lots of others being considered internally, but nothing has been launched yet.

MS. EMILY BRUMIT: Thank you.

Dave, you mentioned the concept of peak shaving, especially when you talked about your EV, and when we think about low income communities being able to take advantage of these technologies, I think there was a comment also about you have to have a Nest or a smart thermostat or something like that.
to really take advantage of these technologies or these apps.

How can we get around that? What are utilities doing to provide low-income communities with this technology so that they can take the greatest advantage of these opportunities?

MS. JENNIFER MESENBRINK: I was going to add something just to clarify that. So, for example, my husband drives a Volt. He's a manic electric vehicle fan. And so we had the charger installed in the garage, and he set it up to charge overnight during the low pricing hours, but didn’t require him to be an hourly pricing user or have the mobile app. We have them, but you know -- so there are options for people to use other means to get those lower prices as long as they schedule them to run at those times.

MR. DAVE KOLATA: I guess the low income issue is obviously a very important one, and we always keep that in our minds. With the Future Energy Jobs Act, there was the Solar For All program. There were expansions of low income energy efficiency
programs. I think continuing to do that is very important, because certainly we want to be sure if something costs money, well, if you're low income, you're going to have a harder time doing that, and yet, you can get a significant payback and save money over time, and we should find solutions that enable that. So I want to keep that key.

I think a lot of what's coming down the pike, I think if we set up the ecosystem right, are predictive analytics that kind of suggest ways, a lot of which may not even be very costly; be it a pricing program or be it taking advantage of a particular type of existing efficiency program, and I think that, you know, there's a lot that we can do as a community to help that.

And it occurs to me, Chairman, you asked what can we do, and I think there are some of the nuts and bolts that we have to get first in place to make sure that Green Button, for example, is working not as well as we would ultimately like to be, at least well. But there's a lot we can do. Promotion, for example, and building buzz, and we
have a testbed concept in the whole smart grid bill. You know, we're members of the Smart Energy Consumer Collaborative that just issued a report. They sort of did a broad-based survey of consumers across the board, and they found quite a bit of interest. I think it's around 72-to-73 percent of consumers are very interesting in things that set it and forget it, but provide environmental value and consumer value.

So I think it's -- the desire is there, but making sure that when you first come into contact with it, it's actually enabling you to do what you want to do and not a disappointing experience. So I think that there's -- if we can work together to try to figure out ways to develop more of these apps, and then we can promote it, encourage participation.

I don't know if crowd sourcing the idea is -- you know, sometimes that works; sometimes it doesn't. But anything that we can really get people engaged in in the space, I think, there's just a lot of potential, and we should try to encourage
that as much as possible.

MS. JENNIFER MESENBRINK: You just reminded me of something else that Exelon does, just for your awareness. Exelon throws every year now for the past two or three years an innovation expo where they encourage internal employees to come up with ideas and showcase them and get some of them built. It's taking advantage of sort of that pipeline of ideas and really trying to make them real. 3500 people participated in that fair this year.

MR. DAVE KOLATA: And even though Illinois is not perfect, I think we are ahead of the game compared to a lot of states on access to data and those types of issues. And so we're strategically positioned that if we do a little bit more, we can make this sort of a center of the country, and I think that would be a good story for us to tell.

But like I said, there's more work that needs to be done, because we do hear a lot that Kevin said, that Green Button for whatever reason is kind of clunky. So a lot of these apps that are going to allow you to really set it and forget it and
be able to capture savings or environmental value are a little more difficult than they should be to sign up for, for example.

MS. EMILY BRUMIT: We have time for a couple of more questions, I think.

My next question is about social media. So what are some of the most important ways that utilities can or are using social media to engage customers, and what are we really learning from the use of social media?

MS. JENNIFER MESENBRINK: So at ComEd, social media is very important to our organization, and that's -- the social media team is on my team. One of the things that they do is they do 7:00 a.m. to 7:00 p.m. constant monitoring and response. And also we have overnight, 24/7 for emergencies and outages, and that's personal response.

We also have two apps set up -- one of them launched last year -- called the Twitter outage reporting app. So customers can sign up to report their outages and check their status over Twitter, and they can also use a Facebook app to do
that and actually do use the Facebook one a little bit more than the Twitter one. We did just set those up in the past couple of years.

The other thing that we really with social media is people coming to us with very complex questions. So, for example, on Facebook, it has, like, a 53,000 character limit. So if they have a lot to say, they can say it in Facebook.

So customers will come to us, and they will send us photos of what's happening and tell us every detail of what's happening. But it's valuable, and it helps us connect with them in a very personal way.

And I think social media just continues to grow for us, and we continue to gain followers and see more and more of those personal conversations with customers that way all the time.

Another thing is primarily a lot of those discussions happen offline or, like, through direct messaging, so that they're not public. We do go out and we hide -- if anyone ever discloses their account numbers or anything, we hide that.
One of the other things we're looking into is enabling automated chat. So we would look into having artificial intelligence or chatbot capability through Facebook Messenger. We're looking at doing that down the road. Right now, it's all personal responses.

MS. ELLEN RENDOS: We have some similar things that we're doing at Nicor Gas. We've probably been involved in it for just a year or two years in social media, but I'm not as close to it as you are. I'm more familiar with us monitoring comments and actually having teams that are monitoring the comments and actually reaching out and trying to resolve various issues, because it is a wealth of information.

I think we're looking at it as a benefit to hearing what our customers have to say and understanding what problems they have before they get escalated. So that's what I'm familiar with.

MR. DAVE KOLATA: For us and utility -- social media, that's where most people are these days for good and for bad, I suppose, depending on your
perspective, so I think you have to be engaged in that channel.

I would say just two anecdotes. We also noticed we get a lot of very complicated questions, not in a bad way, but we get some very in-depth questions that we also have to figure out how best to handle those by having people call later on and things like that. So anything that could automate the chat response from a utility perspective, I could see that potentially being beneficial.

But it is a channel. As you know, we get a lot of complaints about certain alternative suppliers, and I think that that's probably our number one channel these days are people saying, hey, so-and-so is in my neighborhood and that type of issue.

So we are able to, I think, get more direct access to what's going on in the community through those channels.

MS. EMILY BRUMIT: Great. Thank you. We have time for one more question.
My colleague, Ritta, asked this question to her panel, so I would like to give you all an opportunity to respond.

Do you think that the energy industry struggles with promoting the value in smart technology? Why or why not?

MS. JENNIFER MESENBRINK: I mean, I think it's tremendously revolutionizing our business model. So to me, it's difficult to promote in a way, because it's hard to get folks to download the app or go to the website. But once they have a My Account, they have great capability to make changes to their own energy experience and to look at their usage.

And, Commissioner, you asked about the difference between the ComEd mobile app and the website, so I was sitting in the audience saying, I would love to talk about that.

So the website is a little bit -- I want to say it's a little bit more of a -- almost like a full dictionary of what ComEd has to offer. It has 1200 pages of information on it. That's after we cut it down by about half in 2016 when we launched
the new website. And so that's -- it's really -- it's got everything. You know, it's got all of our rates and tariffs information. It's got all the EV information. It's got basically all about ComEd.

But the mobile app is much more transactionally focused and a much more simplified experience. So it only has 35 pages. And it allows customers to get right in to see their bill as soon as they log in. There's no lines, no waiting. It's got the facial recognition feature so they can log in without even using a password if they're signed up for it. That type of thing. We're able to build that into the native app a little bit more easily than we are to the website.

I have to say I agree with Ellen that the IT -- the competing priorities are an issue for us, what gets built first. So the app is a little more flexible. So, for example, we're going to be rolling out another capability in the app in about a month and a half or two months time where it will change the color of the app during storm -- we're calling it storm mode, and the goal of that is to
sort of alert customers that now might not be the
time to pay your bill.

Because what happened to our sister
utilities was they had a nor'easter, and it affected
the whole system because people were trying to log on
and report an outage, but they were paying bills.
There were too many calls on our web services, so it
took their system down.

So we're trying to change our model
so that when they get in there, they have a different
experience. They see storm mode, and they are
immediately getting outage information instead of
calling up, you know, what's your bill this month and
when is it due and that time of thing.

Anyway, the app is just a little bit
lighter in terms of web services and development
capability, and we're happy to have both, but it's
definitely a little bit of a different experience.

COMMISSIONER ROSALES: And I'm learning,
because during this time and how fast it goes, I just
found out through social media that Peoples Gas
doesn't have one either. So an electric company
would be different than a gas company in terms of how it serves its customer. I just learned that going through this. I thought it was kind of interesting how -- because when I brought up the question on the website, it was actually a water company that was trying to move people over to the website.

So every utility looks at it in a different way. From what I'm gathering today, which I really appreciate, is that you have to look at it not by utilities, but by specific utilities and how they reach their customers. So I really appreciate the conversation.

MS. JENNIFER MESENBRINK: And I also think the mobile app -- you know, we've discussed do we end up with just a mobile app or just the website, but at this point, it's not -- and now is not the time. But there are ongoing discussions about that very question.

COMMISSIONER ROSALES: Okay.

MR. DAVE KOLATA: I think it is an area where utilities have struggled. I think things are getting better. I think the reasons they have
struggled have come out on both panels. Utilities phase has traditionally been a little bit slower to move. There's a monopolization component to it. So you haven't necessarily needed to be on the forefront.

So you've got that group of problems or group of issues. But then a lot of it, I think, especially in the more future-oriented stuff, that it does come down to this how does the utility facilitate third parties in a way that gets the benefits of competition without necessarily some of the issues there or without, you know, how can you figure out the business models of some of that and how do you have a blending there, and you're enabling others to provide value.

And I think those are solvable issues, but they are issues, and a lot of this ultimately comes down to the nuts and bolts of things like that.

MS. ELLEN RENDOS: And I know we don't have an app, but we are investing in smart technology all the time. We've had a lot of good examples of
things.

One other thing I thought about was just things to protect our customers. When we're taking payments over the phone, we've got, like, a pause technology on our phone systems so that we're not recording people's credit cards or bank account numbers. I think that was one of the questions, how are we handling some of the security and concerns about cyber security.

We're constantly putting in new technology to try to protect private information of our customers. That's a huge concern on our part, and we spend a lot of time and effort putting those types of things in place, whether they're encryption devices. Every CSR has an encryption device. So none of the information about someone's account is going directly into our systems. It's encrypted before it actually hits our customer information system.

So that's just one example of some of the smart technology we're putting in along with, you know, the AMI we're looking forward to.
MS. EMILY BRUMIT: Thank you all so much. That is all the time we have for questions today. On behalf of the Commission, I would like to thank our presenters for educating us on the policy considerations for mobile apps for utility operations. Please join me in congratulating our panelists.

(Appplause.)

ACTING COMMISSIONER PALIVOS: Thank you for taking the time to join us at the Policy Session on Mobile Apps for Utility Operations. I want to especially thank Ritta and Emily for putting together such a wonderful and informative session. Thank you so much.

(Appplause.)

(WHEREUPON, the above-entitled matter was adjourned.)