

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-100, Sub 147

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of)	ORDER ACCEPTING DENC'S AND
Smart Grid Technology Plans Pursuant to)	DEC'S SGTP UPDATES, REQUIRING
Commission Rule R8-60.1(c))	ADDITIONAL INFORMATION FROM
)	DEP, AND DIRECTING DEC AND
)	DEP TO CONVENE A MEETING
)	REGARDING ACCESS TO
)	CUSTOMER USAGE DATA

BY THE COMMISSION: On September 30, 2016, Dominion Energy North Carolina (DENC) filed its smart grid technology plan (SGTP) in the above-captioned docket. On October 3, 2016, Duke Energy Progress, LLC (DEP) and Duke Energy Carolinas, LLC (DEC) filed their SGTPs in this docket. After several requests for extensions of time to file comments were granted by the Commission, comments were filed on December 19, 2016, by the Public Staff and North Carolina Sustainable Energy Association (NCSEA). Environmental Defense Fund (EDF) filed comments on December 20, 2016. On January 13, 2017, reply comments were filed by DENC, and jointly by DEP and DEC (collectively, Duke).

On March 29, 2017, the Commission issued an Order Accepting Smart Grid Technology Plans (2016 SGTP Order) in this docket. In the 2016 SGTP Order, the Commission found good cause to request that the electric utilities, the Public Staff, and all interested parties continue discussing potential rule changes related to access to customer usage data and that Duke include a report on those discussions in its 2017 SGTPs. Further, the Commission's Order cited several requirements of Commission Rule R8-60.1 with respect to the information to be provided by the electric public utilities for smart grid technologies currently being deployed or scheduled for implementation within the next five years, and stated:

Neither DEC, DEP nor DNCP included the above information in their 2016 SGTPs with regard to any future plans for deployment of AMI meters. The Commission interprets this to mean that DEC, DEP and DNCP currently have no plans to replace existing meters with AMI meters, either incrementally or on full scale, during the next five years. As a result, the Commission expects DEC, DEP and DNCP to provide the Commission with the above information, as well as any other required information, in their SGTP filings prior to implementing an incremental or full scale effort to replace existing meters with AMI meters.

2016 SGTP Order, at p. 17.

On May 5, 2017, DEC and DEP filed supplemental information regarding DEC's and DEP's 2016 SGTPs. In summary, DEC advised the Commission that in late 2016 it decided to begin a full scale deployment of AMI in North Carolina, that it began implementing that decision in early 2017, and that it expects to complete its AMI deployment in North Carolina in 2019. DEC attached a cost-benefit analysis and other information regarding its decision to deploy AMI. With regard to DEP, the supplemental filing stated that DEP had not made a decision to deploy AMI.

On August 21, 2017, the Commission issued an Order Requiring Smart Meter Plan Presentation by Duke Energy Carolinas, LLC (SGTP Presentation Order). The Order scheduled a presentation on AMI by DEC, and included several questions to be answered by DEC regarding its decision to deploy AMI.

On August 25, 2017, DEC filed an application in Docket No. E-7, Sub 1146 requesting an increase in its retail rates. The request includes the costs associated with AMI deployment.

On October 2, 2017, in compliance with Commission Rule R8-60.1, DEP and DEC filed Smart Grid Technology Plan Updates (SGTP Updates). DENC filed a letter stating that there are no changes to its previous SGTP report.

On October 6, 2017, DEC filed its responses to the questions included in the Commission's SGTP Presentation Order (DEC's First Responses).

On October 10, 2017, DEC made its AMI presentation to the Commission.

On November 1, 2017, the Public Staff filed a letter stating that it reviewed DEC's and DEP's SGTP Updates and believes that they comply with the requirements of Commission Rule R8-60.1, and, therefore, recommends that the Commission find that the SGTP Updates comply with the requirements of the Rule. Further, the Public Staff states that because the SGTP Updates are intended to be informational the Public Staff does not take a position on the smart grid technologies being considered by the utilities.

On November 20, 2017, the Commission issued an Order Requiring Additional Information (Additional Information Order) requesting that DEC respond to several questions.

On December 15, 2017, DEC filed its responses to the questions included in the Commission's Additional Information Order (DEC's Second Responses).

On February 5, 2018, the Commission held a public witness hearing in this docket. No public witnesses attended the hearing.

On February 23, 2018, the Commission issued an Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase to DEP in Docket Nos. E-2, Subs 1131, 1142, 1103, and 1153). In that Order, the Commission determined, among other things, that it would not open a separate docket for grid modernization planning and/or revisions to existing Commission rules at this time. Rather, the Commission decided that it will reconsider such proposals pending the effectiveness of the planned Power/Forward technical workshop, SGTPs, integrated resource planning process, and the outcome of this issue in DEC's general rate case in Docket No. E-7, Sub 1146.

Background

By Orders dated April 11, 2012 and May 6, 2013, in Docket No. E-100, Sub 126, the Commission amended its rules requiring electric utilities that file integrated resource plans (IRPs) to include in their IRPs information on how planned "smart grid" deployment would impact the utilities' resource needs. Commission Rule R8-60.1 requires the electric utilities to file SGTPs every two years with updates in the intervening years. The initial SGTPs were filed by the electric utilities on October 1, 2014. The Commission, in its Order dated November 5, 2015, approved these 2014 SGTPs. In addition to approving the SGTPs, the Commission ordered (1) DEC, DEP, and DENC to address in their 2016 SGTPs whether the Commission's rules require updating to address customer and third party access to usage data and (2) DEC to address the issue of AMI opt-outs relative to its current and planned AMI deployments by December 1, 2015.

The Commission stated in the November 5, 2015 Order that smart grid proceedings are intended to be informative, and that the Commission does not anticipate using them to order utilities to make specific smart grid investments, nor are they a means by which utilities should seek to secure advance prudence reviews of smart grid investments.¹

By Order dated June 13, 2016, in Docket No. E-100, Sub 126, the Commission amended Rules R8-60(i)(10) and R8-60.1 stating that the amended rules will better focus the SGTP proceedings as an informative effort to assist the Commission and parties in anticipating the potential impact of new technologies on customers.

Rule R8-60.1(c) states that

For purposes of this Rule, smart grid technologies are as set forth in Rule R8-60(i)(10) and shall also include those that provide real-time, automated, interactive technologies that enable the optimization and/or operation of consumer devices and appliances, including metering of customer usage and providing customers with options to control their energy consumption.

¹ It should be noted, however, that G.S. 62-42 grants the Commission authority to order an investor-owned utility to make equipment improvements if necessary to assure that customers receive adequate and sufficient electric service.

Rule R8-60.1(c) lists the information to be included in each utility's SGTP. In summary, the Rule requires a description of the technologies, goals, and objectives of each technology, the status and timeframe for completion of the project, and cost information. In addition, Rule R8-60.1(c)(7) requires additional details about plans and ongoing deployments of AMI.

Summary of Smart Grid Technology Plans

Duke Smart Grid Technology Strategy

In 2017, Duke outlined its plans over the next decade to modernize the North Carolina grid by means of its Power/Forward Carolinas initiative. In summary, Duke maintains that Power/Forward is comprised of strategic programs that will each play a part in building a smarter energy future for customers. According to Duke, these strategic programs represent the means to deliver the road ahead strategies of modernizing the power grid and transforming the customer experience, as outlined in the 2016 SGTPs. Moreover, Duke asserts that the early years of Power/Forward will establish the foundational and enabling infrastructure and technologies to achieve Duke's long-term objectives of a more reliable, resilient grid to better serve customers.

According to Duke, certain programs included in the Power/Forward initiative are technologies that fall under the definition of "smart grid technologies" outlined in Commission Rule R8-60.1(c), while others are not. All of the programs have similar objectives in the long term, improving reliability and resiliency of the grid; however, certain programs, like Targeted Undergrounding, are not deemed smart grid technologies. Duke has determined that the Self-Optimizing Grid, and certain portions of the Enterprise Systems Upgrades, Communications Network Upgrades, and Transmission Improvements programs meet the criteria for the SGTP and will be outlined within its SGTPs each year as applicable. The Enterprise Systems Upgrades primarily consists of the Distribution Management System (DMS) Consolidation projects as outlined in the 2016 SGTPs. According to Duke, applicable projects or initiatives are included in the 2017 SGTP Updates or will be included in future SGTPs as appropriate.

Duke states that the initial planning for the 10-year Grid Improvement Plan was completed in early 2017. Given this is a 10-year plan, Duke will utilize a "progressive elaboration" process, pursuant to Project Management Institute best practices, to govern the plan throughout the lifecycle. In this process, the initial overall 10-year plan concepts are approved first, then a more detailed version of each year's plan is submitted and approved annually.

Following are smart grid technologies identified in Duke's updated plans:

DEC Current and Scheduled Technology Deployments – R8-60.1(c)(3)

- AMI Deployment

- Self-Optimizing Grid
- Usage Alerts
- Pick Your Own Due Date

DEC Technologies Actively Under Consideration – R8-60.1(c)(4)

- Enterprise Transmission Health & Risk Management Project
- Enterprise Communications Network Upgrades Program

DEP Current and Scheduled Technology Deployments – R8-60.1(c)(3)

- AMI Deployment
- Self-Optimizing Grid

DEP Technologies Actively Under Consideration – R8-60.1(c)(4)

- Capacitor Bank Controls Upgrade
- Enterprise Transmission Health & Risk Management Project
- Western Carolinas Energy Storage Analysis and Deployment Plan
- Enterprise Communications Network Upgrades Program

DENC Smart Grid Technology Strategy

DENC states that it continually evaluates technologies to provide value-added services to customers and improve operations. Smart grid technologies are evaluated using standard DENC processes. DENC's strategy for evaluating and developing smart grid technologies includes assessing existing capabilities and evaluating new capabilities required to achieve the Company's targeted business objectives. After evaluating the new capabilities required for a targeted objective, a cross functional leadership team reviews the new capabilities to determine how they fit into the Company's overall corporate strategy. During this review, the team identifies high priority capabilities with consideration to business needs and budgetary constraints.

At the completion of the cross functional leadership team review, DENC focuses significant effort on developing the high priority capabilities necessary to achieve the targeted objective. The development includes researching available technologies, reviewing industry trends, and evaluating technologies from a technical, financial, and policy perspective.

DENC Current and Scheduled Technology Deployments – R8-60.1(c)(3)

All technologies included in the SGTP are in the pilot phase. DENC does not have capital allocated for deployment of additional smart grid technologies.

Discussion of SGTP Updates

AMI Deployment

Commission Rule R8-60.1(c)(3), subsections (ii), (iii) and (vii), require that SGTPs include the following information, among other things, for technologies currently being deployed or scheduled for implementation within the next five years:

- (ii) The status and timeframe for completion.
- (iii) A description of any existing equipment to be rendered obsolete by the new technology, its anticipated book value at the time of retirement, alternative uses of the existing equipment, and the expected salvage value of the existing equipment.
- (vii) Analyses relied upon by the utility for installations, including an explanation of the methodology and inputs used to perform the analyses.

DEC - AMI

In the AMI cost-benefit analysis filed by DEC as a part of its supplemental information filing on May 5, 2017, DEC concluded that its AMI deployment would result in net benefits having a present value of \$117.1 million (Supplemental Filing, Exhibit A). The largest category of benefits included in the analysis is entitled “Non-technical line loss reduction - power theft, equipment failures and installation errors.” It is the last column of benefits shown on Exhibit A, and totals \$634.8 million. In comparison, the next largest category of benefits is “Reduced meter operations costs – consumer order workers for meter orders,” a total of \$175.4 million. In response to question number 2 included in the Commission's SGTP Presentation Order, DEC stated, in pertinent part:

According to a 2008 EPRI report, industry experts project that a reasonable percentage for non-technical losses is 2% of gross revenue. This assumption was utilized in calculating the DEC AMI benefits.

DEC's First Responses, at p. 5.

During DEC's SGTP presentation, DEC witness Donald Schneider, Jr. was asked whether EPRI or any other entity did a physical real world study to verify the 2% non-technical losses figure. Witness Schneider responded:

Not to my knowledge. I think they went on data. Again, this was a report, not necessarily a study but it was a report, and they were going off of other

reports and studies going back years and years that came up with this on average 2 percent of gross revenues so they did not.

Transcript, at p. 40.

Witness Schneider also stated that DEC has not performed a study that confirms the 2% amount reported by EPRI. In addition, witness Schneider stated that based on DEC's cost-benefit analysis the costs of the AMI deployment would outweigh the benefits until 2025 (Transcript, at p. 44).

In the Commission's Additional Information Order, the Commission requested that DEC provide the following information:

8. Using the actual historical kilowatt-hour and lost revenue data for energy theft that DEC has experienced and is discovering in North Carolina, including during its AMI deployment, develop an independent estimate of the percent of additional revenues DEC will collect via that deployment that would otherwise be lost due to theft and other non-technical losses.

9. Provide a revised 20-year AMI cost-benefit analysis that includes: (a) the costs of replacing AMI meters at the end of their 15-year lives, (b) the most recent estimate of the costs of cellular direct connect meters, (c) the cost of replacing other components and software at reasonable intervals, and (d) the non-technical revenue loss estimate (rather than the EPRI 2% estimate) developed pursuant to question 8.

DEC's revised AMI cost-benefit analysis was attached to DEC's Second Responses as Exhibit No. 2. The largest category of benefits included in the analysis continues to be "Non-technical line loss reduction - power theft, equipment failures and installation errors." However, the amount of this benefit went down from \$634.8 million to \$448.8 million. In addition, the revised cost-benefit analysis shows that AMI deployment would result in net costs having a present value of \$49.9 million (DEC's Second Responses, Exhibit No. 2).

In DEC's SGTP Update, on pages 6-8, DEC provides the information regarding its AMI deployment. In summary, DEC states that through August 2017 it has installed approximately 850,000 AMI meters in North Carolina, and plans to install an additional 1.1 million AMI meters through 2019. Further, DEC states that it will remove and replace approximately 1.32 million automatic meter reading (AMR) meters from 2017 through 2019. DEC states that the AMR meters have an estimated salvage value of \$1.37 million, and an estimated remaining net book value of \$127.66 million as of March 31, 2017. In Exhibit A, Appendix C, DEC provides its AMI cost-benefit analysis, which is the same analysis that DEC filed as a part of its supplemental information filing on May 5, 2017.

In DEC's general rate case application, Docket No. E-7, Sub 1146, DEC seeks the recovery of \$102.1 million in actual and estimated costs for AMI deployment from January through November 2017. In addition, DEC requests authority to establish a regulatory asset

account to defer for later recovery the cost of meters that are being replaced by AMI. (Pre-filed Direct Testimony of Jane McManeus, at pp. 18-19)

DEP - AMI

In DEP's SGTP Update, on pages 6-8 and 17-18, DEP provides information regarding its plans for AMI deployment. In summary, DEP states that it has installed 56,819 AMI meters as of August 2017, and that it has installed approximately 182 AMI meters since the count provided in its 2016 SGTP. DEP states that its Board of Directors has endorsed the AMI deployment project, but "the outcome of regulatory considerations in the DEP rate case (Docket No. E-2, Sub 1142) could affect the Company's timing to advance the project." Further, DEP states that its existing AMR meters will have an estimated net book value of approximately \$77.2 million as of December 31, 2017. In Exhibits A-G, Appendix C, DEP provides its AMI cost-benefit analysis. Similar to the initial cost-benefit analysis filed by DEC, DEP's analysis uses the EPRI 2% of revenues as a proxy for "Non-technical loss reduction."

Conclusions Regarding AMI

Commission Rule R8-60.1(c)(3) requires the electric utilities to provide the Commission with a cost-benefit analysis and other detailed information about smart grid technologies currently being deployed by the utilities or scheduled for implementation within the next five years. One purpose of the rule is to allow the Commission, the Public Staff, and other interested parties to review information about proposed smart grid programs, request additional information when needed, and have input regarding the implementation of smart grid programs well in advance of their implementation. Smart grid technologies are relatively new and evolving projects that require substantial capital investments. Therefore, the public interest is best served by the Commission and parties having sufficient time to study and understand the details of a smart grid project before it is launched.

As noted previously, DEC did not provide a cost-benefit analysis and other required information in its 2016 SGTP to support an AMI deployment. Consequently, the Commission directed DEC "[t]o provide the Commission with the above information, as well as any other required information, in their SGTP filings prior to implementing an incremental or full scale effort to replace existing meters with AMI meters." SGTP Order, at p. 17 [emphasis added] Nevertheless, DEC, as it reported in its May 5, 2017 supplemental filing, began deploying AMI meters "in early 2017."

Public utilities are required to provide cost effective services. G.S. 62-2. DEC's revised AMI cost-benefit analysis, filed in response to the Commission's Additional Information Order, shows that on a present value basis the costs of DEC's AMI deployment are \$49.9 million more than the benefits. The Commission acknowledges that an economic analysis is but one of the tools necessary to inform decisions such as the deployment of AMI. However, concerns are raised by a cost-benefit analysis that shows significant

negative costs. The Commission notes that the question of AMI deployment by DEC is presented for decision in DEC's pending general rate case in Docket No. E-7, Sub 1146.

Based on the foregoing and the record in these dockets, the Commission finds good cause to accept DENC's SGTP Update, and to accept DEC's SGTP Update on the condition that DEC shall comply with the Commission's directive regarding discussions on access to customer usage data, as set forth below.

With regard to the AMI portion of DEP's Update, the Commission finds good cause to require that DEP file a revised AMI cost-benefit analysis using the same guidelines as requested of DEC in the Commission's Additional Information Order, to wit:

8. Using the actual historical kilowatt-hour and lost revenue data for energy theft that DEP has experienced and is discovering in North Carolina, including during its AMI deployment, develop an independent estimate of the percent of additional revenues DEP will collect via that deployment that would otherwise be lost due to theft and other non-technical losses.
9. Provide a revised 20-year AMI cost-benefit analysis that includes: (a) the costs of replacing AMI meters at the end of their 15-year lives, (b) the most recent estimate of the costs of cellular direct connect meters, (c) the cost of replacing other components and software at reasonable intervals, and (d) the non-technical revenue loss estimate (rather than the EPRI 2% estimate) developed pursuant to question 8.

Access to Customer Usage Data

In the Commission's 2016 SGTP Order, the Commission declined to consider a usage data access rule proposed by North Carolina Sustainable Energy Association (NCSEA), and, instead, requested that the parties continue their discussions on the subject and report back to the Commission.

The Commission encourages the electric utilities, the Public Staff, and all interested parties to continue meeting and discussing rule changes related to customer usage data and third party access. The Commission recognizes there are many factors the stakeholders must consider when proposing rule changes to provide easy access to granular energy consumption data. These include, but are not limited to, customer privacy, liability, authorizations, Codes of Conduct, and affiliate transactions which should be appropriately addressed in the parties' discussions. Therefore, rather than initiating a formal rulemaking docket at this time, the Commission requests that Duke include a report on the discussions regarding potential rule changes in Duke's 2017 SGTPs.

The Commission appreciates NCSEA's efforts to develop and propose a new Commission Rule R8-51.1 addressing data access.² However, the Commission chooses not to offer discussion, findings or conclusions on the proposed rule pending the above referenced rulemaking discussions and report.

2016 SGTP Order, at 23.

In their SGTP Updates, DEC and DEP (collectively, Duke) provide their report regarding discussions on potential changes to the rules governing access to customer usage data. Duke states, in pertinent part:

Since the issuance of the Commission's March 29, 2017 SGTP Order, DEC and DEP have not had any formal discussions with NCSEA and the Public Staff regarding potential rule changes to address data access issues. DEC and DEP had some discussions related to data access issues with NCSEA and the Public Staff in the context of a legislative stakeholder process, but no such legislation was ultimately enacted. The Companies remain willing to have further discussions should the Commission decide to engage in such rulemaking.

SGTP Updates, at p. 19.

Conclusion (Access to Customer Usage Data)

The Commission is aware of the stakeholder discussions surrounding the proposed legislation referenced by Duke. The stakeholder discussions, like the proposed legislation, were wide ranging, and perhaps did not present an optimal opportunity for the parties to focus on the question of guidelines for access to customer usage information. During the DEP general rate case proceeding (Docket No. E-2, Sub 1142), Mr. Somers stated that "If NCSEA or the Public Staff or any other party is interested in talking about data access, the Company is more than willing to do so at any reasonable time." (Tr. Vol. 12, p. 256) Therefore, the Commission finds good cause to direct that Duke convene and facilitate discussions with NCSEA, the Public Staff, and other interested parties on this topic, with the goal of reaching agreement on all aspects, or as many aspects as possible, of the rule proposed by NCSEA. The first meeting shall be convened on or before June 4, 2018. In addition, the Commission requests that the discussions include the Green Button Connect My Data system for data access. The Commission further directs that Duke provide the Commission a report detailing the discussions, agreements reached on particular points, points on which agreement has not been reached, and the barriers to agreement on remaining points, as well as the parties' plans for further discussions. The report shall be filed in Docket E-100, Sub 147 no later than 30 days after the first meeting of the stakeholder group. Further, the Commission directs Duke to reflect the results of these discussions in its 2018 SGTP reports.

² NCSEA Comments, Exhibit C, Docket No. E-100, Sub 147 (December 19, 2016).

IT IS, THEREFORE, ORDERED as follows:

1. That DENC's letter identifying no changes to its previous SGTP report is accepted.
2. That DEC's SGTP Update is accepted, with the condition that DEC shall comply with the Commission's directive regarding discussions on access to customer usage data, as set forth herein.
3. That DEP shall within three months of the date of this Order file a revised AMI cost-benefit analysis as described in the body of this Order.
4. That Duke shall convene meetings with NCSEA, the Public Staff, and other interested parties to discuss guidelines for access to customer usage data, as specified in the body of this Order. The first meeting shall be convened on or before June 4, 2018. Duke shall file a report with the Commission, no later than 30 days after the first meeting, providing the Commission with the details of the discussions, and the parties' plans for further discussions. Duke shall reflect the results of these stakeholder discussions in its 2018 SGTP reports.

ISSUED BY ORDER OF THE COMMISSION.

This the 7th day of March, 2018.

NORTH CAROLINA UTILITIES COMMISSION



Linnetta Threatt, Deputy Clerk

Commissioner Charlotte A. Mitchell did not participate in this decision.