Introduction to Roanoke Electric's Upgrade to $ave Program
with CEO Curtis Wynn
Thursday, April 9, 2015

Answers to Questions Submitted in Writing

1. Can you speak more about who made up the project team, as well as to any type of partners that the Coop has in carrying out the program?	Roanoke Electric forged a partnership with a non-profit organization closely associated with the cooperative, called The Roanoke Center. The utility and the non-profit together formed an internal project team that is led by the CEO and COO and the director of the non-profit center, which serves as the Program Operator. Roanoke Electric engaged experts to build the program, licensing the intellectual property for the Pay As You Save® system from the Energy Efficiency Institute, Inc. and licensing the software needed for cost-effectiveness analysis from OptiMiser Energy. For workforce development support, Roanoke Electric has engaged Advanced Energy. Roanoke Electric has also benefited from strategic guidance from Clean Energy Works.
2. Are you hearing interest from other electric cooperatives about establishing an investment program similar to Upgrade to $ave? What are the barriers?	Roanoke Electric has been contacted by multiple electric cooperatives interested in the program and in the business plan for a loan application to back the program. The main barriers appear to be related to know-how. That is why Roanoke Electric is committed to promoting cooperation among cooperatives, sharing insights of experience and offering to share a template of the business plan for those electric cooperatives that want to offer their members a similar opportunity. For anyone who is interested, there is a form for inquiries linked to the Roanoke Electric website: www.roanokeelectric.com/usda-eeclp. With regard to other barriers, the Public Utilities Commission does not approve tariffs implemented by electric cooperatives in North Carolina. In other states, regulators may need to approve a tariff, as has been done by regulators in four states and utility oversight boards in two other states.
3. Can Roanoke Electric help my cooperative or other utilities get financing for a similar program?	Roanoke Electric is committed to cooperation with other cooperatives, and any of them can make use of the Pay As You Save® system, which is the same solution underpinning the Upgrade to $ave program as well as How$mart in Kansas and How$martKY in Kentucky. That is why Roanoke Electric set up a webpage to share insights of its experience and let anyone sign up to receive more information. The site is: http://www.roanokeelectric.com/usda-eeclp/ . Also, Roanoke Electric will accept requests for calls from executives at other utilities who have inquiries not answered by the webinar or this Q&A document.
4. How much savings do you expect Upgrade to $ave to generate for the utility in reduced demand charges?	Roanoke Electric estimates that the value of avoided demand charges for upgrading 1000 sites is in excess of $2 million.
5. How are you measuring effects on peak load and demand charges?	Roanoke Electric has previously updated the meters for its members, which will make program performance easy to track. The estimates for effects on peak load and demand charges are based on the experience of more than a hundred sites upgraded through the Help My House program in South Carolina.

6. Does Roanoke Electric offer to pay program participants for the Energy Efficiency Credits generated by their upgrades? If so, what is the value of each EE credit purchased, and how is that calculated?	Yes, Roanoke Electric is required to achieve a certain level of energy efficiency by the NC Renewable Energy Portfolio Standard, and energy efficiency is included. Roanoke Electric offers to pay customers up to \$0.2 cents/kWh per energy efficiency credit (through 2022, when the law expires) to help more upgrades qualify as cost effective. This is approximately the same value that Roanoke Electric is charged by sources of Energy Efficiency Credits outside the utility's service area, so the incentive payment to members converts a business expense into an investment in the local economy.
7. What is the source of capital for the loss reserve that you've established? Is the amount for it tied to the projected dollar value of loans you anticipate making?	In the course of regular business, members of Roanoke Electric are charged a penalty fee if they cannot meet payment arrangements. (Arrangements are accommodations by the utility that allow a customer to pay bills over time.) To initiate the loss reserve for the Upgrade to \$ave investment program, Roanoke Electric dedicated funds that had accumulated from those fees. The loss reserve is conservatively scaled to be sufficient to cover losses of 1% per year of outstanding obligations from participating members, which is three times higher than the utility's prevailing charge-off rate and much higher than the charge-off rate for investments made by utilities using the PAYS® system.
8. Can you give us an example of how much bills change after the upgrades?	While Upgrade to \$ave is just getting started at Roanoke Electric, the program design is based on the Pay As You Save® system, which is the same as the design for programs in Kansas (How\$mart™) and Kentucky (How\$martKY). The average energy savings in those programs has been around 25%, and the Pay As You Save® system ensures that some of those savings are immediately available to the participant. For Roanoke Electric, that portion is 25%, so on average, the cost of electricity would be about 5% *lower* until the utility has recovered its investment - and then the member receives the full value all of the savings.
9. What percentage of your member base are estimated to be able to "pencil out" so that savings will fully mitigate costs of upgrades?	Roanoke Electric is targeting 1000 customers over 5 years, which would still be less than 10% of the membership base. Initial billing analysis helped Roanoke Electric identify high-users in the summer and winter season, and the usage for those customers are so high that confidence in finding cost-effective upgrades at 1000 sites is high.
10. Many utilities are increasing fixed customer charges. How will that impact the ability to pencil out a project?	Roanoke Electric is a distribution cooperative, and a fixed customer charge is part of its rate structure. This helps assure the utility of revenue for a system that serves all grid-connected customers. With that assurance, Roanoke Electric is able to leverage its considerable capacity to help businesses in the area become more competitive and households become better off with energy savings that generate benefits for them and the utility. However, where the volumetric rates charged by a utility are low, it is more challenging to achieve cost-effective savings with upgrades similar to those offered in Kansas (How\$mart™) and Kentucky (How\$martKY).
11. How did you chose to reach ~1.5% of accounts per year? How does that number compare to other programs?	Roanoke Electric aims to reach 1000 members in 5 years. This would be an average of about 4 members per week, which seemed to be a good starting level, and it is consistent with the minimum efficiency gains our utility aims to make under the state energy efficiency resource standard (EERS). The NC EERS calls for utilities to achieve 0.25% per year in efficiency, and to put that scale in context, many utilities across the country have targets greater than 1% per year.

12. What percentage of members volunteered or inquired about the program vs. you promoting/selling to a member?	Roanoke Electric already has a waiting list for the program based on interests expressed in prior programs, so promotion of Upgrade to $ave has thus far been limited to a bill insert flyer and the webpage announcement.
13. What would cause a customer to not be approved for the program?	If a member is occupying a building or a residence that needs major repairs, Roanoke Electric will not invest in upgrades there until those have been addressed. Thankfully, Roanoke Electric can refer members to other programs that are intended to address health and safety issues, including the Rural Housing Section 504 program.
14. What level of savings impact (average per home) was achieved through the prior loan-based program Roanoke EC offered? What was the actual default rate?	Too few of the members at Roanoke Electric who wanted to access capital for energy upgrades were able to qualify for the loan-based program to collect this data. For example, over 150 members sought to benefit from a loan program promoted by the utility, and ultimately, fewer than 4 made it through the process to finance their upgrades.
15. Can farmers use this program to improve their out-buildings and irrigation systems?	Yes, Roanoke Electric will make investments in cost-effective upgrades in any customer class.
16. Is Roanoke Electric doing the workforce development or partnering with an agency to do so? How well is it working to match the scale of the program?	Workforce development is an ongoing activity for Roanoke Electric. Advanced Energy, a non-profit in North Carolina, has provided instrumental training curriculum for local contractors preparing to perform energy upgrades to sites served by Roanoke Electric.
17. How does one become a qualified contractor? Do you have relationships with local community colleges or other entities to help with workforce development?	Roanoke Electric invited local contractors to an informational meeting and then a 2-day training course that concluded with a proficiency test on key attributes of the program. Contractors that wanted to sign an agreement with the utility to perform work through the program then needed to sign a Contractor Agreement, which included providing documentation that they were licensed, bonded, and insured. Roanoke Electric is exploring ways to offer more training opportunities for more contractors in the local community who want to compete for the work. In addition to its relationship with Advanced Energy, Roanoke EMC is trying to enroll the local community college in workforce development efforts.
18. What has been the administrative impact of taking on the Upgrade to Save program? How many employees do you have working on this internally?	Roanoke Electric is implementing Upgrade to $ave without hiring new staff because it already had staff capacity devoted to addressing customer concerns about high bills. While those earlier programs based on loans and rebates were ultimately not effective for reaching customers who most needed upgrades, the same staff capacity is now committed to a more responsive solution. As a line of business, Upgrade to $ave does involve staff attention across the electric cooperative ranging from member communications to billing and accounting.

19. How much administrative time has Roanoke Electric Cooperative had to commit to get this program up and going? What advice do you have for electric cooperatives that feel they don't have the internal bandwidth to get an initiative like this going?	Roanoke Electric Cooperative secured $6 million in financing for its investment program in efficiency in about 90 days. That process involved engagement with the board members each month as they approved the business plan and the loan application. Since then, administrative time associated with launching the program has involved engagement with local contractors and interested members. Roanoke Electric's experience has been informed by lessons learned by the Mountain Association for Community Economic Development (MACED), which serves as a program operator for multiple electric cooperatives that offer the How$martKY program - also based on the Pay As You Save® system. Electric cooperatives that are not inclined to implement a program directly can seek a partner like The Roanoke Center or MACED to operate the program on their behalf.
20. How does the program impact your workforce, not just to manage the program, but meeting any EECLP tracking/management requirements?	Roanoke Electric will use its existing billing system to generate the specific annual reports required by the EECLP program. Those queries are not labor intensive. The time that staff at the Program Operator (The Roanoke Center) and Roanoke Electric specifically spend on the program varies by function (e.g. member services, communications, billing, etc.). Staff time committed to the Upgrade to $ave program reflects its status as a strategic priority in the Roanoke Electric Cooperative strategic plan.
21. Do you mark up the interest rate on the EECLP loan when investing in upgrades at members' sites?	No. The cost of capital for members is the same as for the utility itself. Roanoke Electric does have the option of charging members to participate in the program, covering costs it may incur that are not already compensated by the benefits that the participants are generating for the cooperative.
22. What does the member sign that allows the utility to recover its costs?	A Purchase Agreement, which is signed by the member, the contractor that will perform the work, and the program operator that is running the program on behalf of Roanoke Electric.
23. How would the program work with Prepaid?	On prepaid accounts, the Upgrade to $ave charge is pro-rated by the day like other fixed charges.
24. Is it legal to disconnect for non-payment of a tariff?	Yes. This is how utility tariffs work. Energy efficiency upgrades are an essential utility service delivered by the Pay As You Save system, so the collections are the same as for electricity service. Regulators in four states and utility oversight boards in two other states have approved this approach.
25. Is it legal to bind future owners of a property to a previous owner's actions?	Yes, and disclosure to future customers at that site is important. New customers at an upgraded site benefit from a utility's investment that lowers their energy bills, and they should be informed by the landlord, the prior owner, and/or the utility. As with disconnection for non-payment, regulators in four states and oversight boards in two other states have approved this approach.
26. What energy modeling software are you using?	Roanoke Electric has licensed OptiMiser Energy for completing on-site analysis to determine which upgrades would be cost-effective.

27. It seems to me that an electric cooperative that is locked into take-or-pay contracts with electricity generators may face a disincentive to substantially reduce electricity consumption among member-customers. Did Roanoke Electric face that problem and do you know of any other coops that might fact that problem?	Roanoke Electric is not obligated to buy electricity its members don't need. Without that conflict of interest, Roanoke Electric is aligned with its members' interest in saving money by cutting waste.
28. What, if any, were the concerns that your Board expressed?	The Roanoke Electric Board wanted to be sure that the management team would be able to execute well for our Members.
29. How can more electric cooperatives take advantage of the EECLP program?	Roanoke Electric is committed to promoting cooperation among cooperatives, and this webinar to help more people explain the opportunity to the leadership and membership of their cooperative is one contribution. In addition, Roanoke Electric will share the template of the business plan accepted by USDA for an EECLP loan. That plan is specific to the Pay As You Save® (PAYS®) system, which is the basis of the Upgrade to $ave program, and it is available by request through this website: http://www.roanokeelectric.com/usda-eeclp

Introduction to Roanoke Electric's Upgrade to $ave Program with CEO Curtis Wynn

Hosted by the U.S. Department of Energy
January 2015

Answers to Questions Submitted in Writing

1. Was there any NC legislation you had to wade through in order to make the program work, as far tying the loan to the meter or making it a personal loan?	Roanoke EMC did not need to seek any change to state law to offer the Upgrade to $ave program, which is a does not involve making loans. Upgrade to $ave is a voluntary tariff-based program that offers debt-free, on-bill financing for cost-effective investments in energy efficiency. Roanoke EMC notified the state regulator of electric cooperatives of the new tariff when the board voted to approve it.
2. Is the debt obligation tied to the meter?	The Pay As You Save® (PAYS®) system that Roanoke EMC is implementing (following Midwest Energy and cooperatives in eastern Kentucky) does not impose a debt obligation on program participants. However, the utility does require that the customer sign an agreement that allows our utility to recover its costs from upgrades to their property. If that customer moves away, the obligation to pay the monthly cost recovery charge does transfer with the meter to successive customers. As long as costs are still being recovered at that a specific site, successive customers benefit from the net savings, and when the costs are fully recovered, the successive customers enjoy the full amount of gross savings from the upgrades.
3. What exactly is the financial obligation between the member and Roanoke Coop if it isn't a loan?	Through Upgrade to $ave, Roanoke EMC is using the same type of financial obligation that is embedded in tariffs we use to recover costs from all Members. The Upgrade to $ave tariff is distinct from standard tariffs in two ways. First, it is voluntary, so it only applies to locations at which customers have agreed to upgrades, including the savings estimates and the monthly charges. Second, the amount of the tariffed charge is specific to the investment at each site, and the charge is tied to the meter at that site.
4. How do you calculate the fixed cost to add to power bill and charge the customers?	Our costs for making an energy efficiency investment includes the cost of capital through EECLP, and the total cost is divided by the number of months in the useful life of the upgrade, typically ten years. Roanoke EMC will only invest in efficiency upgrades that are cost effective, and we are very conservative in our calculations. The upgrades we invest in must generate savings that are significantly higher than fixed charge that we calculate would be necessary to recover our costs.

5. Is Roanoke charging an interest rate and if so, what percent and what is the financing time period?	Roanoke EMC is making the federal financing available to its members at the same Treasury rate at which it is provided by RUS, which is less than 3%. The cost recovery period for investments made through the Upgrade to $ave program will typically be 10 years.
6. With different terms for different pieces of equipment, how do you determine the term for a loan if a member is upgrading multiple systems?	Roanoke EMC will not be making loans because Upgrade to $ave is a tariff-based program. Nevertheless, the question about cost recovery period is still relevant. In North Carolina, statewide guidance on energy efficiency upgrades has already confirmed that the useful life for the main types of upgrades eligible for Upgrade to $ave is 12 years or longer, whereas Roanoke EMC will typically recover its cost in 10 years. The Pay As You Save® system, upon which the Upgrade to $ave system is based, does support program designs that include different cost recovery periods for different upgrades at a single site.
7. Upgrade to Save: pls lay out the high level steps that happen in this program... from customer inquiry to survey/audit, work scope creation, work done, and any QA, and then measurements (after-the-fact monitoring) to see if modeled savings met actual. Thanks!	The Upgrade to $ave program is based on the Pay As You Save® (PAYS®) system, which is the same system used for years by Midwest Energy and four cooperatives in eastern Kentucky. PAYS is the licensed intellectual property of the Energy Efficiency Institute of Vermont, so inquiries about the business process we are using can be directed to them: Harlan@eeivt.com
8. Who owns the equipment that is installed?	The utility owns the upgrades to the property until the costs are recovered.
9. What are the members' responsibilities after installation and during time payments are being made through their bill?	In order to participate in the program, Members must agree to maintain the energy performance upgrades in their property. For example, they are responsible for changing filters in central air systems. They are also responsible for paying their monthly bill, just as they are already responsible for doing to keep the lights on.
10. How is the tariff/line item treated from a collections standpoint? Could non-payment lead to shut off?	In the Upgrade to $ave program at Roanoke EMC, non-payment can lead to disconnection through the same protocols that apply to our Members for all other tariffs.

11. Do all members qualify (including those on pre pay) regardless of cooperative credit rating and pay history?	The Upgrade to $ave program is open to all members, including those on pre-pay. Roanoke EMC will consider the number of disconnections made due to non-payment in the prior 12 months. One cooperative that participated in the Help My House program in South Carolina accepted participants that had up to two disconnections in the past 12 months, and virtually all of our Members would pass this threshold. Non-payment due to high bills is a sign of financial distress that the Upgrade to $ave program may be able to help address, curbing losses that the utility might otherwise accrue in any case.
12. What types of buildings are addressed? Commercial? Residential? Is there any multifamily included?	The Upgrade to $ave program is open to all Members, including commercial and industrial customers. Members can volunteer to make improvements to any type of building as long as the investment meets our utility's cost-effectiveness requirements.
13. Are manufactured houses eligible for Roanoke or NAEC programs?	Manufactured houses that are on a permanent foundation are eligible for the Upgrade to $ave program if they need no major repairs. Roanoke EMC will not invest in properties that are likely to fall into disrepair or suffer long-term vacancy during the duration of the tariffed on-bill charges, and for that reason, Upgrade to $ave will not likely invest in the older manufactured homes in our service area. Partners of Next Step Network are focused on finding ways to finance the replacement of the oldest manufactured homes, so they might have more information on those options.
14. Do either of the co-ops allow for energy efficiency measures to be made to mobile homes?	Manufactured houses that are on a permanent foundation are eligible for the Upgrade to $ave program if they need no major repairs. Roanoke EMC will not invest in properties that are likely to fall into disrepair or suffer long-term vacancy during the duration of the tariffed on-bill charges, and for that reason, Upgrade to $ave will not likely invest in the older manufactured homes in our service area. Partners of Next Step Network are focused on finding ways to finance the replacement of the oldest manufactured homes, so they might have more information on those options.
15. With the "Upgrade to Save" program at REC, what is the process for landlords/property owners to sign off before any measures are installed in one of their properties?	The Upgrade to $ave program includes an Owners Agreement that must be signed by a building owner before Roanoke EMC can proceed with an investment that the tenant volunteers to pay for out of savings on their monthly bill over time.

16. Do contractors need to be BPI certified? Can you summarize the training of contractor staff?	The Roanoke EMC service area is already served by a few BPI certified contractors, though that certification is not required by our program at this time. The business plan for Upgrade to $ave includes a budget for workforce development to support training that would prepare local contractors for certifications accredited by the U.S. Department of Energy, such as certificates from the Building Performance Institute for Retrofit Installer, Work Crew Leader, Energy Auditor, and Quality Control Inspector.
17. Question for Roanoke, 10-20% post-install project verification seems standard, but this has been an issue in the past, leaving room for contractor error and expected savings discrepancies. Aside from proof of contractor certification, how do you plan to mitigate the risk involved, i.e. actual overall project cost-benefit. Does the USDA require a 3rd party M&V entity?	The EECLP rule requires that applicants prepare a business plan that specifically addresses quality assurance, including evaluation, monitoring, and verification (EMV). EECLP does not specifically require a third party EMV entity. In the business plan for Upgrade to $ave, Roanoke EMC specified the Uniform Method Protocol for EMV that the U.S. DOE has approved for Whole-Building Retrofit with Energy Bill Data Analysis. This best practice will allow Roanoke EMC to detect specific sites where expected savings are not materializing. In the Upgrade to $ave program, failed inspections lead to substantial penalty fees for a contractor, generating funds necessary to pay for additional inspections. The utility's quality control budget is sufficient to identify problem contractors, and the penalty fees are sufficient to ensure that if more money is required for quality control, those contractors responsible for creating the need for more inspections will pay for the additional costs.
18. What constitutes a "failed" measure? What if the measure just underperforms?	In the Upgrade to $ave program at Roanoke EMC, the cost-effectiveness test is very conservative, requiring the average monthly savings to significantly exceed the cost recovery charge. This reduces the risk that the financial standing of the program participant would be jeopardized by a measure that underperforms the energy auditor's expectations. If a piece of equipment like a heat pump stops working, the measure would fail to deliver savings unless it can be repaired. The Upgrade to $ave program includes multiple lines of recourse to ensure that measures will be repaired or monthly charges will be stopped.
19. Did anyone interview program participants? If so, what was good, bad, otherwise?	Roanoke EMC will seek feedback from all participants as well as non-participants who are contacted by the utility or contractors regarding participation in the program. Utilities in Hawaii, California, and New Hampshire that have used the Pay As You Save® system for on-bill financing have undertaken independent evaluations, available upon request. The Help My House program that is another type of on-bill financing program in South Carolina also has been evaluated here: http://www.cepci.org/assets/HelpMyHouseFinalSummaryReport_June2013.pdf

20. Is Roanoke Electric or others involved in this presentation willing to speak to key utilities like APS, SRP and TEP in Arizona on how best to implement on-bill financing? We'd also likely have to get approval from the Arizona Corporation Commission. Efficiency First Arizona is more than willing to coordinate and follow up on what if would take to get on bill financing in Arizona where possible. [Heather Szymanski] [heather@efficiencyfirstaz.org]	Roanoke EMC is committed to sharing the insights of its experience with other cooperatives, as we have benefited from insights shared by utilities in Kentucky and Kansas who have also taken a tariff-based approach to offering debt-free, on-bill financing to customers. The Kansas Corporations Commission and the Kentucky Public Service Commissions have already held dockets and issued orders regarding tariffed on-bill financing based on the Pay As You Save® system. These dockets establish useful precedents for utilities seeking to implement similiar programs. The Pay As You Save® or "PAYS®" system, on which Roanoke's program is based, can be implemented by investor owned utilities as well as cooperatives and other public power utilities. The PAYS system was developed by the Energy Efficiency Institute of Vermont. Harlan Lachman (harlan@eeivt.com) is the best point of contact for inquiries about using PAYS for on-bill financing. In addition to the staff at the Rural Utilities Service, Pat Keegan, principal at Collaborative Efficiency and moderator for this webinar, is an excellent resource for speaking with utilities interested in EECLP.
21. Grants are usually insufficient to fund all of the desirable improvements for every interested rate payer. Have you considered issuing bonds to fund all of the desirable energy efficiency improvements?	For the Upgrade to $ave program, Roanoke EMC is drawing on unsubsidized federal financing through EECLP because it is an more accessible and lower cost source of capital than seeking to issue bonds. Utilities in Kansas and Kentucky using the Pay As You Save® system, upon which Upgrade to $ave is based, have already demonstrated that grant funds are not required to serve customers interested in cost-effective energy efficiency upgrades. Most customers will accept the opportunity to purchase debt-free home improvements that will lower their costs in exchange for letting the utility recover its costs with a charge that is significantly lower than the expected savings.
22. Do you have any evidence that lien secured loans are a barrier to uptake?	Through a prior initiative to offer consumer financing to members for efficiency upgrades, Roanoke EMC found that very few of its members could qualify for a loan - or would be willing to take on more debt. Debt itself was a barrier to uptake. For this reason, the Roanoke EMC Board chose to approve a business plan that would deploy EECLP capital through a voluntary tariff for debt-free, on-bill financing.