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April 28, 2017

**VIA EMAIL**

Honorable Kathleen Burgess  
Secretary, New York State Public Service Commission  
Three Empire State Plaza  
Albany, New York 12223

Re: Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision (REV) – Demonstration Project Quarterly Report

Dear Secretary Burgess:

On behalf of New York State Electric & Gas Corporation's and Rochester Gas and Electric Corporation's, subsidiaries of AVANGRID, Inc., enclosed for filing are the quarterly reports for the Community Energy Coordination, the Flexible Interconnect Capacity Solution, and the Energy Marketplace demonstration projects. These reports cover the period of January 1, 2017 through March 31, 2017.

If you have any questions, please contact me directly at 607.762.4977.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Scott Bochenek", written in a cursive style.

Scott Bochenek

Enclosure

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## **Reforming the Energy Vision**

Demonstration Project Q1 2017 Report

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# **Community Energy Coordination**



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## 1.0 Executive Summary

New York State Electric and Gas (“NYSEG” or “the Company”) submits this quarterly report on the progress of the Community Energy Coordination (CEC) demonstration project. The CEC demonstration project is attempting to reduce customer barriers to the adoption of distributed energy resources (DER).

Through the CEC project NYSEG is marketing three different DER’s; residential solar, community shared solar, and energy efficiency services, directly to its customers. Customers are encouraged to go to an online services marketplace where they are able to gather information and connect with participating energy efficiency and community shared solar service providers, and receive competitive quotes from residential solar service providers.

The services marketplace platform, yeshomesolutions.com, was launched during Q1 2017. Other milestones that were met during Q1 included on-boarding of the participating service providers and completion of the project marketing plan.

Plans for Q2 2017 include:

- Marketing plan execution
- Analyzing customer response and website traffic
- Online platform refinement
- Analyzing initial service provider results

## 2.0 Demonstration Highlights since the Previous Quarter

### 2.1 Activity Overview

Major accomplishments during Q1 2017 included:

- Established agreement with eight service providers representing ten different services.
- Developed the structure and content for the yeshomesolutions.com site including site testing.
- Finalized the marketing schedule and plans.
- Yeshomesolutions.com site launch and marketing launch.

#### 2.1.1 Activity: Service Provider Engagement

Eight DER service providers are participating in the demonstration project representing ten different services. These include:

## **Energy Efficiency**

- Halco
- The Insulation Man
- SNUG Planet
- Zerodraft

## **Residential Solar**

- ETM Solar Works
- Halco
- Solar Liberty
- Twin Tier Solar
- Taitem Engineering

## **Community Shared Solar**

- Taitem Engineering

Service providers have been engaged throughout the quarter, providing relevant content for site development and establishing feedback loops. Additionally, EnergySage hosted training meetings with individual residential solar contractors to either set up or fine tune their online profiles. EnergySage taught contractors how to use the system and shared best practices.

### **2.1.2 Activity: Platform Development**

NYSEG partnered with Simple Energy and Energy Sage to deliver the online platform for connecting customers with participating service providers. The online platform was launched on March 16<sup>th</sup> and is an informative resource for customers while facilitating customer-service provider engagement.

Outline of major activities:

- Simple Energy built the yeshomesolutions.com platform and gathered NYSEG's input for content and site structure throughout the process.
- Data tracking and reporting mechanisms between NYSEG and Simple Energy as well as NYSEG and the service providers were identified and roles were assigned.
- Website testing was performed and approved.
- Contractor feedback was received to improve the site.
- Full site launch occurred on March 16<sup>th</sup>.

### 2.1.3 Refine Project Metrics

Based on the lead referral agreements executed with the participating service providers, revenue will be generated based on a lead referral fee. For the demonstration period the lead referral fee will only be charged if a lead is converted to a sale.

A goal has been established to generate 500 leads during the six month period of April to September with an estimate of 250 leads being for Home Assessments and 250 leads being for solar.

It is a reasonable estimate for 20% of leads to become actual projects for the participating service providers. If that is achieved we can expect approximately 50 completed energy efficiency projects and 50 completed solar projects at the conclusion of this demonstration project with estimated revenue of



Project metrics that will be tracked include:

- Email open rate
- Email click through rate
- Website visits from postal mailers
- Volume of website sessions and users
- Leads generated
- Contracts signed
- Energy efficiency kWh and therm savings
- Solar capacity

### 2.1.4 Activity: Marketing Plan Development

The marketing plan was created during the first quarter and includes the following elements:

- Email marketing
  - General
  - Home assessment specific
  - Solar specific
- Postal mail marketing
  - Home assessment postcards
  - Solar postcards
- Online advertising
- Hyper local marketing
  - News letters
  - List serves
  - Word of mouth

#### **2.1.4 Activity: Active Marketing**

Project marketing kicked off during the first quarter and included:

- 3/21/17 – launch announcement email going to 5% of customers with email addresses in Tompkins County
- 3/24/17 – launch announcement email going to 10% of customers with email addresses in Tompkins County
- 3/29/17 – launch announcement email going to the remaining 85% of customer with email addresses in Tompkins County

#### **2.1.5 Sales Completion**

Initial website traffic and lead volumes are encouraging. From 3/21/17 until 3/27/17 there were 312 website sessions with 11 leads generated. This is with the small 15% volume of emails issued. Additional details regarding site performance and sales volumes will be included with the Q2 2017 status report.

#### **2.1.4 Activity: Community Engagement**

- The Community Advisory Board met in January and were provided an overview of market survey results
- On March 29<sup>th</sup> the Community Advisory Board was given the opportunity for a live demonstration of the website during which feedback on the site was received. Written feedback is being collected and reviewed.
- Information about yeshomesolutions.com was shared with various community list-serves.
- Multiple additional discussions regarding this project were held with various other community stakeholders throughout the quarter.

## 2.2 Metrics and Checkpoints

Table 1: Completed Checkpoints

Check Point	Completed
Defined Product Offering	Included in Q1 2016 status report
Identify Target Customers	Q4 2016
Program Design	Completed with signed contractor agreements and launch of site.

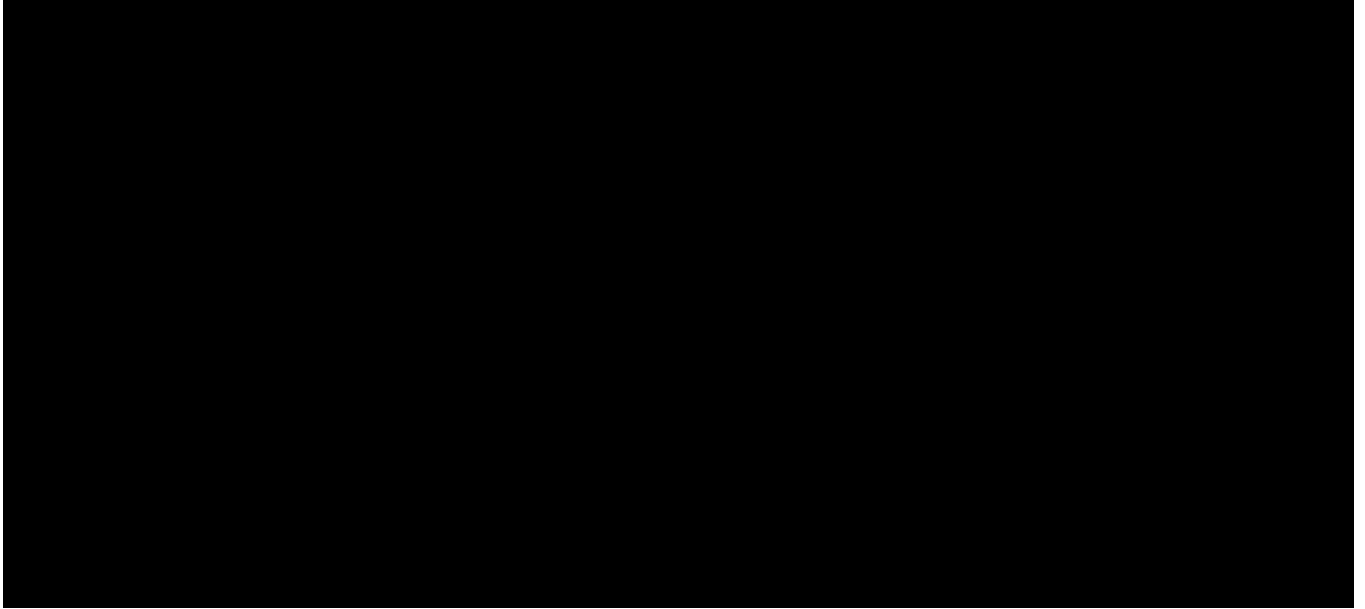
Table 2: Check Points

Check Point	Description
Community Stakeholder Support of Project	Measure: Community stakeholders support the project How: Community Advisory Board expresses satisfaction with the project When: Q2 2017
Customer Response	Measure: Eligible customers response to project communications How: Customer contact tracking Target: 500 leads Actual: 11 % of Target Achieved: 2% When: Ongoing
Customer Adoption	Measure: Eligible customers commitment to project offerings How: Customer sales Target: 100 projects When: Q3 2017
Revenue Generation	Measure: Lead fees generated How: Documented total lead fees paid by participating service providers Target: \$240 per lead When: Q4 2017
Program Efficiency	Measure: Customer acquisition costs are lower than business as usual How: Documented CEC acquisition cost per # of enrolled customer Target: =< participating service provider benchmark When: Q4: 2017
Service Provider Satisfaction	Measure: Participating service providers are satisfied with the CEC project How: Survey of participating service providers Target: >85% satisfaction with the project When: Q4 2017



## 3.0 Work Plan

### 3.1 Budget Review



## 3.2 Updated Work Plan

Table 4: Work Plan

	Ownership	2015		2016				2017			
		Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Phase 0: Project Development</b>											
<b>Activity 0.1: Regulatory Implementation Plan</b>	NYSEG										
<b>Milestone : Regulatory Approval</b>				x							
<b>Activity 0.2: Service Agreement and Contract with Partner</b>	NYSEG										
<b>Milestone: Contract Signed</b>				x							
<b>Phase 1: Planning &amp; Community Engagement</b>											
<b>Activity 1.1: Community Stakeholder Engagement</b>	NYSEG / Taitem										
Establish Community Advisory Board & Socialize Project Goals	NYSEG / Taitem										
Identify key community stakeholders (approx 5 to 7 groups)	NYSEG / Taitem										
Hold introductory meetings with key stakeholder groups	Taitem										
Hold follow up meetings to gather key interested stakeholder input	Taitem										
Hold information gathering meetings with various potential service providers	Taitem										
<b>Milestone: Key lessons learned from community stakeholder engagement</b>				x							
<b>Activity 1.2: Create Updated Project Scope</b>	NYSEG / Taitem										
Identify project scope based on stakeholder input	NYSEG / Taitem										
Communicate project scope to stakeholders (iterate where needed)	NYSEG / Taitem										
Engage with potential service providers	NYSEG / Taitem										
Create updated product / service scope	NYSEG										
<b>Milestone: Updated Scope Filed in Quarterly Report</b>				x							
<b>Phase 2: Project Planning and Market Solicitation</b>											
<b>Activity 2.1: Service Provider Engagement</b>	NYSEG / Taitem										
Issue service provider RFI's	NYSEG										
Benchmark two successful community-based programs to ID best practices	Taitem										
Identify and engage with potential residential solar service providers	Taitem										
Identify and engage with potential sponsors of Community Solar arrays	Taitem										
Identify and engage with potential energy efficiency service providers	Taitem										
<b>Milestone: Issue Service Provider RFP</b>						x					
Review proposals and develop terms	NYSEG / Taitem										
Provide offers to service providers for participation	NYSEG										
Collaborate with selected service providers on program details	NYSEG / Taitem										
<b>Milestone: Contracts With Service Providers</b>								x			
<b>Activity 2.2: Platform Development</b>	NYSEG / Simple										
Define initial platform scope and specifications	NYSEG										
<b>Milestone: Begin Platform Development</b>				x							
Facilitate service provider requirements workshop	NYSEG / Simple										
Build platform	Simple Energy										
Test platform	NYSEG / Simple										
<b>Milestone: Platform Ready for Go-Live</b>								x			
<b>Activity 2.3 Refine Project Metrics</b>	NYSEG / Taitem										
Draft Business Models for each DER	NYSEG / Taitem										
<b>Milestone: Update Business Models with revenue projections</b>								x			
<b>Phase 3: Customer Solicitation</b>											
<b>Activity 3.1: Marketing Plan Development</b>	NYSEG / Taitem										
Market research	NYSEG / Taitem										
Create Marketing Materials	NYSEG / Taitem										
Establish co-marketing with stakeholders	NYSEG / Taitem										
<b>Milestone: Marketing Plan Completed</b>								x			
<b>Activity 3.2: Active Marketing</b>	NYSEG / Taitem										
Targeted marketing	NYSEG										
Public awareness campaign through multiple channels	NYSEG / Taitem										
<b>Milestone: Awareness and Response Targets Met</b>								x			
<b>Phase 4: Market Animation</b>											
<b>Activity 4.1: Sales Completion</b>	NYSEG / Taitem										
Work with DER service providers to optimize results	Taitem										
Work with NYSEERDA to share data	NYSEG / Taitem										
Measure customer satisfaction	NYSEG / Taitem										
<b>Milestone: Sales Target Met</b>										x	
<b>Phase 5: Evaluation</b>											
<b>Activity 5.1: Project Evaluation</b>	NYSEG / Taitem										
Evaluation, measurement, and verification of results	NYSEG / Taitem										
<b>Milestone 1: Revenue Targets Met</b>										x	
<b>Milestone 2: Stakeholder Satisfaction Targets Met</b>										x	

### 3.3 Next Quarter Planned Activities

Activity in the second quarter of 2017 will focus on four areas.

1. Marketing plan execution
2. Analyzing customer response and website traffic
3. Online platform refinement
4. Analyzing initial service provider results

#### **Marketing plan execution**

- Issue email marketing messages to customers as scheduled
- Issue 20,000 postal mailings as scheduled
- Execute Facebook and Google advertising
- Execute local marketing

#### **Analyzing customer response and website traffic**

- Track and analyze the effectiveness of marketing messages based on corresponding website traffic
- Analyze the effectiveness of the online platform content and structure based on customer traffic patterns

#### **Online platform refinement**

- Make website refinements based on data analysis
- Analyze and consider improvements based on input from service providers and other stakeholders

#### **Analyzing initial service provider results**

- Assess and analyze service provider performance and conversion rates

### 4.0 Conclusion

The CEC project team is excited to have crossed the threshold between project development and project operation. The coming months will be an exciting time to assess customer response and service provider perceived value. As a demonstration project the team will maintain maximum flexibility and continue to iterate and make refinements in order to learn as much as possible.

## **Reforming the Energy Vision**

Demonstration Project Q1 2017 Report

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# **Energy Marketplace**



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## 1.0 Executive Summary

Rochester Gas and Electric Corporation (“RG&E” or “Company”) submit this quarterly report on the progress of the RG&E Energy Marketplace demonstration project. The RG&E Energy Marketplace is an e-commerce site to test energy related online transactions, customer satisfaction, and the delivery of more comprehensive energy solutions for customers. The Energy Marketplace platform is further testing methods to customize, engage, and grow the market for energy related products and services by connecting with customers on a range of distributed energy resource (DER) offerings through targeted marketing and tailored content.

RG&E and its partner Simple Energy, a third party specializing in digital customer engagement, entered into planning and design activities of the Marketplace during Q2 2016 to include marketing strategy, branding, product offerings, incentive levels, and data sharing. We also named the Energy Marketplace, the RG&E Your Energy Savings Store (“YES Store”).

The project team implemented a staged launch of the RG&E YES Store during Q3 2016 first targeting employees, followed by 10% of eligible customers, and a full launch to all RG&E residential and small commercial customers. Each phase of the launch was executed with email marketing campaigns designed to motivate customers to take action toward purchasing energy efficiency products.

During Q4 2016, the RG&E YES Store introduced a range of new product offerings and provided special incentives and limited time offers to heighten awareness of the store and create more value for customers.

In Q1 2017, the project continued to expand product offerings on the RG&E Yes Store, increased incentives on Wi-Fi enabled thermostats, developed new strategies for email marketing campaigns, and promoted innovation and connected home products. Co-marketing with the demand response program was developed so customers can learn about additional benefits from purchasing thermostats on the YES Store.

## 2.0 Demonstration Highlights since the Previous Quarter

### 2.1 Activity Overview

Activity and results during Q1 2017 include:

- Email marketing campaigns focused on customer engagement
- Increased LED lighting products and connected home products
- Increased thermostat incentive amounts
- Updated product Buyer’s Guides
- Continued collaboration with other programs - Demand Response (DR), Community Energy Coordination (CEC), Energy Smart Community (ESC)

### **2.1.1 Activity: Email Marketing Campaigns**

Email marketing campaigns continue to be the primary method of generating interest and creating customer engagement on the RG&E YES Store. Based on best practices and 2016 learnings, Q1 of 2017 focused on email engagement.

At the outset, all customers received an email featuring the latest innovative technology to upgrade their homes in terms of safety, comfort and convenience. These featured products included newly added Wi-Fi lighting products, Wi-Fi enabled thermostats and connected home products.

From there, a specific customer's journey depended on that customer's engagement and purchase actions. Email campaigns were configured into a four-week "customer journey" in which the timing, content, and number of emails sent to a given customer was based on that customer's engagement.

A mixture of sales focused emails, educational emails, and solicitation of post-purchase reviews were included in the journey. This series was designed to test our hypothesis that this engagement-based marketing approach will yield increased email engagement rates, conversion rates, and customer satisfaction. The initial testing however did not show significant differences in email campaign engagement and we will continue further testing.

### **2.1.2 Activity: Expanded Product Offerings**

During Q1 2017, there was continued increase of new innovative products on the RG&E YES Store. In particular, Wi-Fi lighting was introduced, offering customers many different choices from basic white light to more sophisticated ambiances, all of which can be controlled from a smartphone. A Wi-Fi smart plug was also introduced, giving customers the ability to control various products directly from a smartphone or tablet.

### **2.1.2 Activity: Increased Thermostat Rebates**

During Q1 incentive levels for Wi-Fi thermostats were adjusted from \$15 to \$25 to be consistent with incentive levels of Energy Efficiency programs. The higher incentive amount will better entice customers to make purchasing decisions given thermostats are the highest price point items on the store. Additionally, it will be more attractive when combined with seasonal manufacture promotions.

### **2.1.3 Activity: Updated Product Buyer's Guides**

During Q1, Simple Energy redesigned the product buyer's guides to a more sleek and user friendly look. The updated guides focus on features specific to product type. For example, thermostat features include reducing energy consumption, ease of use, and safety, while lighting features include shape of bulb, size, color, brightness, etc. All of the buyer's guides are designed to help better explain functionality and help customer's decide which model might be right for them.

### **2.1.4 Activity: Collaboration and Integration with other Projects**

The first co-marketing initiative with the Demand Response Bring Your Own Thermostat (BYOT) program was implemented during Q1. On each eligible thermostat product page of the YES Store, we added a 'tag' directly above the 'add to cart' button. The new tag is labeled '\$85 BYOT E-Gift Card Available' and provides a pop up box explaining how customers may be eligible for the gift card and a link directly to the BYOT program page. Future co-marketing will include email campaigns to customers who purchased a thermostat on the YES Store promoting the BYOT program. The email marketing campaigns are expected to be implemented during Q2.

In partnership with Simple Energy, in Q1 we also implemented the online portal, YES Home Solutions, to connect NYSEG customers in Tompkins County with local Distributed Energy Resource providers for residential, community shared solar and energy efficiency services. Details of YES Home Solutions activities are reported separately in the Community Energy Coordination (CEC) project quarterly report.

In the coming months, we will build on the YES Home Solutions platform to bundle both the service and product offerings in a single portal for NYSEG customers within the Energy Smart Community footprint of Tompkins County.

## **2.2 Metrics and Checkpoints**

Since launch in early September 2016, the RG&E YES Store had 118,231 site visits (sessions) with 2,023 transactions, consisting of 3,628 products sold.

Marketing metrics are outlined in Table 1 below.



Table 1: Marketing Metrics

Marketing Metrics	Q3 2016	Q4 2016	Q1 2017	IA*
Email Open Rates	23.09%	18.59%	22.67%	18.20%
Email Click Rates	2.36%	1.48%	1.33%	1.30%
Email Click to Open Rates	10.22%	7.95%	5.87%	7.00%
Conversion Rate	.06%	.05%	.02%	n/a

Table 2: Transactional Metrics

Sales / Transactions	Q3 2016	Q4 2016	Q1 2017
Number of Transactions	294	1,459	270
Average Price per Transaction	\$ 82.00	\$ 86.65	\$91.41

Table 3: Customer Satisfaction

Customer Satisfaction	Sep 2016	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017
NPS	39	41	51	42	13	59	51
# of responders	38	78	37	229	16	27	39

The checkpoints outlined in Table 4 below will be used to assess program results. Some checkpoints have been modified from the Implementation Plan filed on April 15, 2016 as the project team has redefined metrics to be more applicable to inform scalability and future projects.

Table 4: Checkpoints

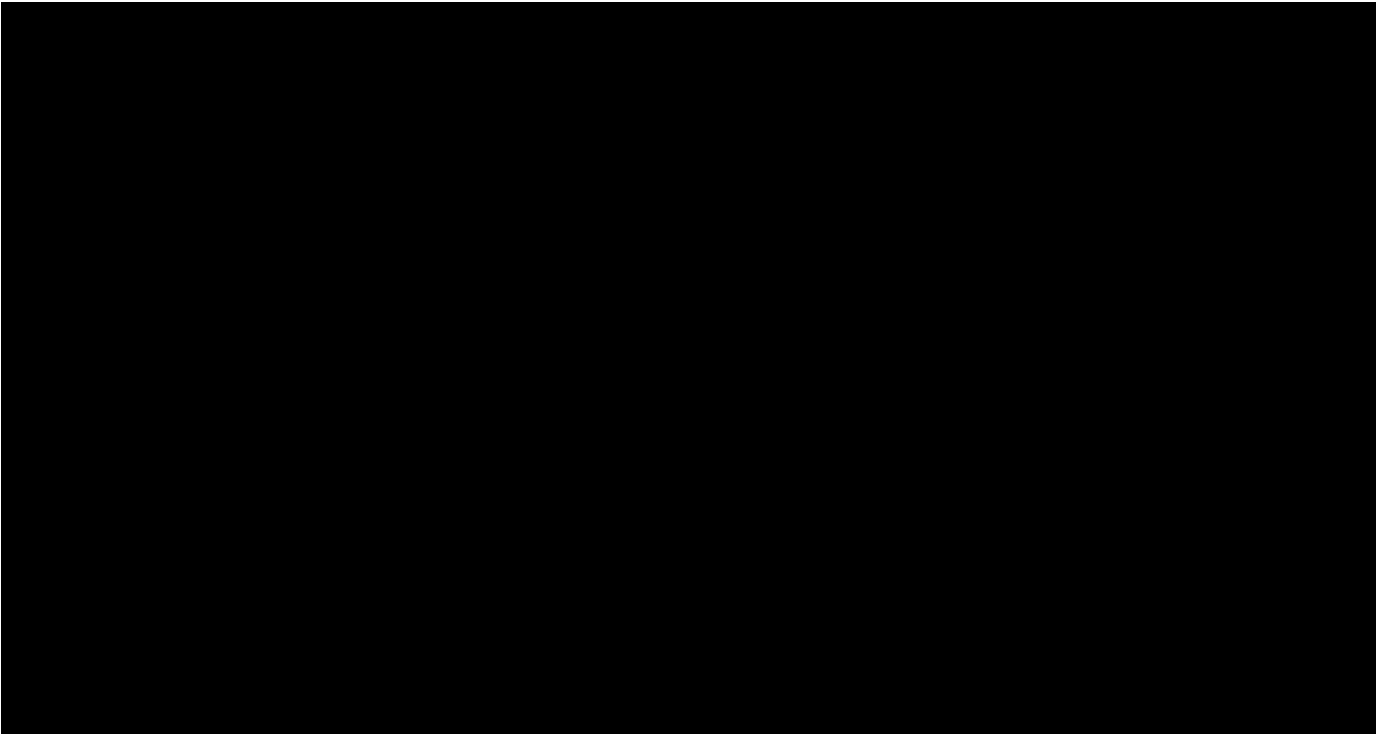
Check Point	Description
Customer Marketing Engagement	<p><u>Measure:</u> Marketing KPIs (Opens, Click-throughs, Conversions...)</p> <p><u>How and When:</u> Monthly, using marketing analytic tools</p> <p><u>Expected Target:</u> 25% Open rate for emails received, and 3% click-through rate for emails received, 2.5% conversion rate for customers who visit the site following each campaign. Results will be formally reported quarterly representing monthly data.</p> <p><u>Solution/Strategy if expectations are not met:</u> Evaluate marketing strategy, evaluate communication methods/channels and evaluate/establish optional advertising levels.</p>

Sales / Transactions	<p><u>Measure:</u> Number of Transactions, Average Price per Transaction  <u>How and When:</u> Quarterly, using Marketplace Portal data  <u>Expected Target:</u> 1,400 transactions quarterly, \$109 per transaction. Will report quarterly noting pace towards annual target.</p> <p><u>Solution/Strategy if expectations are not met:</u> Evaluate and add/change offerings; evaluate and add/change price structure; conduct customer survey to obtain direct suggestion/feedback; add additional marketing/PR channels.</p>
Incentivized Offers	<p><u>Measure:</u> Number of Transactions per incentive, Percent Increase  <u>How and When:</u> Quarterly, using Marketplace Portal Data  <u>Expected Target:</u> 5% overall Increase in transactions over previous quarter. Will report results quarterly.</p> <p><u>Solution/Strategy if expectations are not met:</u> Evaluate and add/change incentive structure. Conduct customer survey to obtain direct feedback.</p>
Customer Satisfaction	<p><u>Measure:</u> Customer Satisfaction using Net Promoter Score  <u>How and When:</u> For all purchasers on the Your Energy Savings Store, a Net Promoter Score (NPS) email is sent which uses a single question survey to establish propensity of a customer to promote or reflect positively on the YES Store experience on an 1-10 scale. Each Quarter the monthly NPS scores will be reported on as the percentage of promoters minus the percentage of detractors.  <u>Expected Target:</u> 35+ showing that the average customer engaging with new program is satisfied or even loyal enthusiasts who will keep buying and refer others.</p> <p><u>Solution/Strategy if expectations are not met:</u> Evaluate and modify customer experience. Conduct follow up survey to obtain direct customer feedback.</p>

Checkpoints that have been modified from the original Implementation Plan are the Sales / Transactions which were based on assumptions of higher thermostat rebates and the methodology for measuring Customer Satisfaction to obtain more direct feedback on the customer experience.

Additionally, the project team has determined the checkpoint for Incentivized Offers as described will vary based on product type and will not provide the most relevant data to support future learnings. This checkpoint will be updated to “Cost Effectiveness” and will be reported in the next quarterly report. Measuring cost effectiveness will better support the hypothesis that the marketplace is an effective channel to provide energy products.

### 3.0 Work Plan



## 3.2 Updated Work Plan

Table 4 outlines the work plan included in the Implementation Plan filed on April 15, 2016. The work plan has generally not changed and remains on track.

	2016	2016	2016	2017	2017
Marketplace Project Plan	Q2	Q3	Q4	Q1	Q2
<b>Phase 0</b>					
<b>Planning Workshops and Artifacts</b>					
Program Design Workshop					
Customer Marketing Workshop					
Merchandising Workshops					
Reporting Workshop					
Final Review of Artifacts					
<b>Integrative Site Build out and Configuration</b>					
Deploy Marketplace Infrastructure					
Add Site Content and Merchandise					
Configure Customer Support Platform					
Configure Retargeting and SEO Advertisements					
Configure Email Service					
<b>Marketplace Data Integration Activities</b>					
Integrate Customer Data					
Create Rebate Reconciliation Process					
Integration Testing and Launch Prep					
<b>Marketing Content Creation</b>					
Email Copy					
Paper Mailers					
Press Releases/Earned Media					
Bill Inserts					
<b>User Acceptance Testing</b>					
<b>Training</b>					
<b>Phase 1</b>					
<b>Marketplace Launch (1st wave of products)</b>					
<b>Marketplace Marketing Plan Execution</b>					
Pre-launch Press Release					
Execute marketing plan					
<b>Phase 2</b>					
<b>Add products and fixed fee services offerings</b>					
<b>Project Evaluation / Scale to NYSEG</b>					

### 3.3 Next Quarter Planned Activities

Strong customer engagement and maintaining a robust customer journey will continue to be the focus of the email marketing campaigns and innovative product offerings in Q2 2017. The RG&E YES Store email marketing campaigns will focus on Earth Day promotions, the start of the cooling season, water saving for the summer, sales promotions for Mother's & Father's day, and 4<sup>th</sup> of July, as well as general awareness campaigns. Additionally, other ways of generating awareness are being explored, including leveraging company sponsored events or direct mailers.

Other innovative outdoor products will be offered including additional LED lighting options, combo lighting/audio products and solarized speakers.

The RG&E YES Store will further co-market the BYOT program with new email campaigns promoting the program to customers who purchased a thermostat from the store.

Planning for the expansion of the YES Home Solutions portal into the ESC Marketplace to bundle products and services to customers within the Tompkins County community will also continue.

### 4.0 Conclusion

During the first quarter 2017, the RG&E YES Store continued to show positive customer engagement. More innovative product offerings were added on the store and positive feedback was received from customers on the types of products and their relevance in building a smart home. The testing of email campaign effectiveness based on customer behavior and previous engagement during Q1 showed inconclusive results. Testing of email marketing campaigns will continue in Q2 to determine effectiveness and to optimize the customer experience.

## **Reforming the Energy Vision**

Demonstration Project Q1 2017 Report

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# **Flexible Interconnect Capacity Solution**



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## 1.0 Executive Summary

New York State Electric and Gas (“NYSEG” or “the Company”) submits this quarterly report on the progress of the Flexible Interconnect Capacity Solutions (FICS) demonstration project. The FICS demonstration project tests a new model for interconnecting Distributed Energy Resources (DERs) to the distribution grid using Active Network Management (ANM) rather than firm capacity. ANM technology allows the utility to manage DER within grid constraints (e.g., voltage, overloads, etc.) using real-time sensing and controls, avoiding more expensive upgrades. This model provides the potential to save on interconnection costs with minimal curtailment on DER, aiding economic viability. In addition, ANM provides the potential for greater penetration of DER.

Two proposed DERs in the NYSEG service territory have been targeted as the demonstration sites for the initial FICS scope. Using ANM, a portion of the interconnection costs for each DER will be deferred by managing network constraints identified in NYSEG’s interconnection analysis. The DERs include a 2 MW solar photovoltaic (PV) farm and a 450 kW farm waste generator.

During Q1 2017, a screening for additional candidate FICS projects was completed using the latest interconnection queue. In addition, a change order deliverable is to document a recommended process for incorporating FICS into NYSEG’s business-as-usual interconnection process flows. This includes developing a business model for recovering the incremental maintenance costs for ANM.

During Q4 2016, NYSEG / AVANGRID, Smarter Grid Solutions (SGS), Eaton, and Clean Power Research (CPR) developed a joint NYSERDA PON 3977 proposal for an integrated DER interconnection solution proposal. This project is intended to streamline the interconnection application, planning analyses, and ANM alternatives analyses by integrating the associated tool kits. Award notices will be issued in Q2 2017.

Plans for Q2 2017 include:

- Install and configure servers, panels, and firewall for DER #1 at AVANGRID control center
- Interconnection agreement for DER #2
- Further evaluation of additional FICS candidate projects
- Begin execution on NYSERDA PON 3397 project with CYME, Smarter Grid Solutions (SGS), and Clean Power Research

The following report provides a progress update on the tasks, milestones, checkpoints, and lessons learned to date.



## 2.0 Demonstration Highlights since the Previous Quarter

### 2.1 Activity Overview

Activity and results during Q1 2017 included:

- Receipt of all central control equipment to perform SAT for DER #1
- Preparation of work orders and purchase orders for DER #1
- Resumption of discussions with DER #2 developer
- Update of analysis and cost estimate for DER #2
- Completion of queue screening and analysis for additional FICS candidate projects.

#### 2.1.1 FICS DER #1

On June 28, this 2 MW PV developer executed a FICS agreement with AVANGRID. On July 21, NYSEG was informed that the 2 MW PV farm project was on hold until March 2017 pending a grasslands bird study. As the agreement has been executed for this project, NYSEG has continued to progress the project factory acceptance test (FAT) and a modified site acceptance test (SAT) in preparation for resumed field activities. The project is scheduled to break ground in late summer and reach commercial operation in March 2018.

Progress during Q1 2017 on DER #1 includes:

- Shipment of remaining, power supplies, firewalls, and jump server for DER #1 integration at NYSEG;
- Update of DER #1 test procedures for SAT.

Plans for Q2 2017 on DER #1 include:

- Install & configure all equipment in the energy control center;
- Complete SAT and commissioning of energy control center equipment; and
- Progress engineering design for substation and line installations.

#### 2.1.2 FICS DER #2

On June 29, AVANGRID issued a proposed FICS agreement for a 450 kW farm waste generator. AVANGRID offered three options to interconnect the generator:

1. Do not participate in FICS and upgrade the Aurora substation transformer bank;
2. Participate in FICS, with the generator managed by ANM to address the thermal capacity constraint at the Aurora substation transformer bank. Install new distribution line regulation to prevent high-voltage conditions; or
3. Participate in FICS, with the generator managed by ANM to address the thermal and voltage constraints.

On September 12, the developer for DER #2 stated that the go-forward decision on this project was on hold pending the interpretation of the \$5k maximum interconnection fee for farm waste generators as described on Page 49 of the “New York State Standardized Interconnection Requirements and Application Process For New Distributed Generators 5 MW or Less Connected in Parallel with Utility Distribution Systems”. As the customer had not executed the agreement on this project, NYSEG deferred construction, configuration, and testing the ANM platform for this project pending execution of the FICS agreement.

On November 29, AVANGRID received word from the DER #2 developer that this project would proceed with a planned start of construction in Spring 2017 and operation commencing in Fall 2017.

On January 24, the developer for DER #2 resumed interconnection discussions with NYSEG. Subsequently, NYSEG has been updating the analysis and cost estimate to address the changes in the interconnection queue and projects subsequently placed in service. An updated analysis and interconnection cost estimate will be shared with the developer in Q2 2017.

### **2.1.3 Screening for Additional Projects**

On October 26, NYSEG executed a change order with Smarter Grid Solutions (SGS) to provide expertise in screening and planning of DER projects for flexible interconnection. Priorities during this activity include:

- Evaluate and prioritize additional potential FICS DER projects;
- Develop a strategy for a long-term FICS process;
- Create a strategy for long-term FICS process automation;
- Document and disseminate flexible interconnection screening techniques and strategies to help with the DER interconnection demand, including presentations and workshops as necessary; and
- Utilize findings for a possible NYSERDA funding proposal.

In January, screening and analysis for additional FICS candidate projects was completed from an updated interconnection queue. A number of potential projects were discussed with developers and two projects were identified for further evaluation.

- DER#3: A 1.7 MW PV installation in Peruville was identified and the developer was interested in a flexible interconnection option. The ANM analysis and cost estimate were nearing completion when the developer notified us that the landowner had died without providing land rights. Since the project is deferred indefinitely, development of the FICS project has stopped.
- DER #4: a 2 MW PV installation in Richfield was also identified and the developer showed interest in a flexible interconnection option. As this installation is flicker limited, it is a new use case requiring a faster control response. Further analysis and testing will be required to prove the solution will provide the requisite power quality. Once proved, this solution has the potential to allow even further penetration of DER on the power grid.

### 2.1.4 Integrated Solution Proposal

NYSEG/AVANGRID is participating in a NYSERDA PON3397 proposal to integrate interconnection functionality between Smarter Grid Solutions, Clean Power Research, and CYME. If the proposal is selected we will embark on a proof-of-concept project to integrate SGS (FICS), CYME (Distribution Analysis), and PowerClerk (Interconnection Administration) to facilitate the interconnection process.

At the conclusion of this project, we hope to integrate interconnection planning and analysis with FICS as a business-as-usual process.

## 2.2 Metrics and Checkpoints

Check Point	Description
Selection of the FICS Option	<p>Measure: The number and percentage of FICS-qualified projects that elect the FICS option expressed as both the number of projects and MWs.</p> <p>When: Execution of interconnection contracts with participating developers is targeted for Q2 2016, therefore progress updates will be provided in the Q4 2015 and Q1 2016 reports.</p> <p>How: FICS qualification is based on preliminary screening of DER interconnection applications, where ANM can enable incremental DER generation capacity that would otherwise require network reinforcement to accommodate the full proposed capacity.</p> <p>Expected Target: At least two DER developers in the NYSEG and/or RG&amp;E territory will elect the FICS option during the demonstration term.</p> <p>Strategy if Results are Below Expectation: If less than two developers provide a show of interest in the FICS option during initial outreach to be conducted in Q4 2015, AVANGRID will review options for next steps in site selection with Staff.</p> <p>Results: One FICS DER #1 has elected the FICS option and FICS DER #2 plans to pursue the option. Additional projects are being screened.</p>
Interconnection Cost	<p>Measure: The total utility infrastructure cost per MW interconnected and the avoided cost of network reinforcement that would otherwise be required. The original project metric proposed included Interconnection Timeframe, but comparing the interconnection period during the demonstration term to that of a firm interconnection may be misleading since the timeline to deliver the ANM system does not accurately represent the timing of deploying ANM at additional DERs following the demonstration term.</p> <p>When: ANM system go live is targeted for Q4 2016, therefore a review of the final interconnection cost for participating sites will be included in the Q4 2016 report.</p> <p>How: The total cost per MW interconnected will be available following completion of the interconnection. The avoided cost of network reinforcement will be determined in the CESIR process based on an estimate developed by AVANGRID.</p> <p>Expected Target: ANM projects in the U.K. have reduced interconnection</p>

Check Point	Description
	<p>costs by up to 90 percent. Interconnection costs for current and historical DER projects governed by the New York Standardized Interconnection Requirements vary by location depending on a number of factors, including size of the project, existing network topology, and required network reinforcement. Therefore, it is challenging to project expected cost avoided through FICS at this time. AVANGRID will propose reasonable comparative assumptions for Staff review.</p> <p>Strategy if Results are Below Expectation: Developers will likely not participate in FICS unless there is a cost savings in completing their interconnection. IUSA Networks will identify scenarios/opportunities where FICS could provide a more economical solution.</p> <p>Results: FICS DER #1 results in an estimated deferral of 57% of the interconnection costs. FICS DER #2 results in an estimated 98% reduction in interconnection costs compared to an interconnection for firm capacity.</p>
Additional MW Exported and Share of Generation Curtailed	<p>Measure: The additional generation exported by participating DER installations (versus projected generation of the baseline firm interconnection capacity offered) and the share of generation curtailed expressed as a comparison between actual curtailment and forecasted curtailment.</p> <p>Timeline: ANM system go live is targeted for Q4 2016, therefore generation and operational curtailment levels will be included in the Q4 2016 report.</p> <p>How: Additional DER generation exported will be measured starting during operations in Q4 2016 and compared to participating developers' generation projections. The share of generation curtailed due to constraint management will be measured during operations in Q4 2016 and compared to Smarter Grid Solutions' forecasted curtailment (as an annualized percentage). Curtailment due to communications failures and network outages will be highlighted and differentiated from curtailment due to constraint management.</p> <p>Expected Target: Additional DER generation exported will vary by project and site. The average DER project curtailment has been approximately five percent annually in the U.K.</p> <p>Strategy if Results are Below Expectation: If actual curtailment in Q4 2016 exceeds the forecasted level on an annualized basis, AVANGRID and Smarter Grid Solutions will reexamine modeling results to refine the curtailment forecast.</p> <p>Results: FICS DER #1 is a 2 MW rated photovoltaic generator. FICS DER #2 is a 450 kW farm waste generator. These sites are not yet operational.</p>
Total FICS Utility Revenue	<p>Measure: Utility revenues from platform-as-a service fees in the aggregate and on a per-MW basis for participating projects.</p> <p>When: Execution of FICS-based interconnection contracts with participating developers is targeted for Q2 2016, therefore progress updates will be provided in the Q4 2015 and Q1 2016 reports.</p> <p>How: Platform-as-a-service fee included in interconnection contracts</p>

Check Point	Description
	<p>executed with participating developers, which may be based on a shared risk structure.</p> <p>Expected Target: The area of commercials development for the platform-as-a-service business model is a primary focus for testing. AVANGRID is aiming to obtain robust lessons learned on effective development of revenue opportunities from FICS. In the July 1 FICS proposal filing, AVANGRID examined various fee options that would cover the revenue requirements of adopting FICS capabilities, with analysis indicating that a annual fee charged to each DER would cover the revenue requirements of ANM at scale with DERs contracted.</p> <p>Strategy if Results are Below Expectation: Capture robust lessons learned on developing revenue opportunities from FICS should be the primary indicator of successful testing for the project. IUSA Networks will identify barriers preventing revenue generation and assess potential alternative revenue models.</p> <p>Results: The FICS DER #1 contract did not include platform service fees, but used a cost deferral calculation instead. The draft FICS DER #2 agreement options include a platform fee of \$23,000 or \$12,000, depending upon the option chosen.</p>
Customer Satisfaction	<p>Measure: Key drivers and obstacles of FICS adoption among targeted DER developers.</p> <p>Timeline: Execution of FICS-based interconnection contracts with participating developers is targeted for Q2 2016, therefore surveying results of targeted developers that decided not to go forward with FICS will be presented in the Q2 2016 report and surveying results of participating projects will be presented in the Q4 2016 report.</p> <p>How: Post-interconnection survey of all targeted developers, including those that decided not to go forward.</p> <p>Expected Target: AVANGRID is aiming to obtain robust lessons learned from non-participating developers to inform future FICS site selection and outreach efforts and to gather lessons learned from participating developers to inform how ongoing ANM operations can meet developers' needs.</p> <p>Strategy if Results are Below Expectation: AVANGRID will evaluate how to improve engagement efforts to increase future participation in FICS and meet participating developers' needs.</p> <p>Results: Section 4.0 of this report discusses observations from discussions with targeted developers.</p>
External Engagement	<p>Measure: Lessons learned and opportunities for scaling FICS based on feedback from external, non-developer stakeholders with a role in DER development and interconnection in New York.</p> <p>Timeline: AVANGRID will provide updates in each quarterly report on engagement outcomes with the Joint Utilities, NYSERDA, etc.</p>

Check Point	Description
	<p>How: Description of stakeholder engagement lessons learned.</p> <p>Expected Target: AVANGRID will engage NYSERDA with the aim to gauge the statewide baseline interconnection record for funded DERs, to effectively develop the platform-as-a-service business model, and identify opportunities for other ANM applications to increase DER interconnections in New York. AVANGRID will engage the Joint Utilities to review current interconnection challenges and alternative interconnection solutions being developed in New York.</p> <p>Strategy if Results are Below Expectation: AVANGRID will utilize NYSEG and RG&amp;E interconnection records as its base data set for reviewing and comparing interconnection outcomes and challenges.</p> <p>Results: We continue to gain insights from the FOICS demonstration project and we are investigating tools and options to facilitate FICS as a business-as-usual process. We are evaluating Clean Power Research's PowerClerk tool for interconnection administration and we are a partner to a NYSERDA PON proposal to integrate FICS, PowerClerk, and CYME.</p>

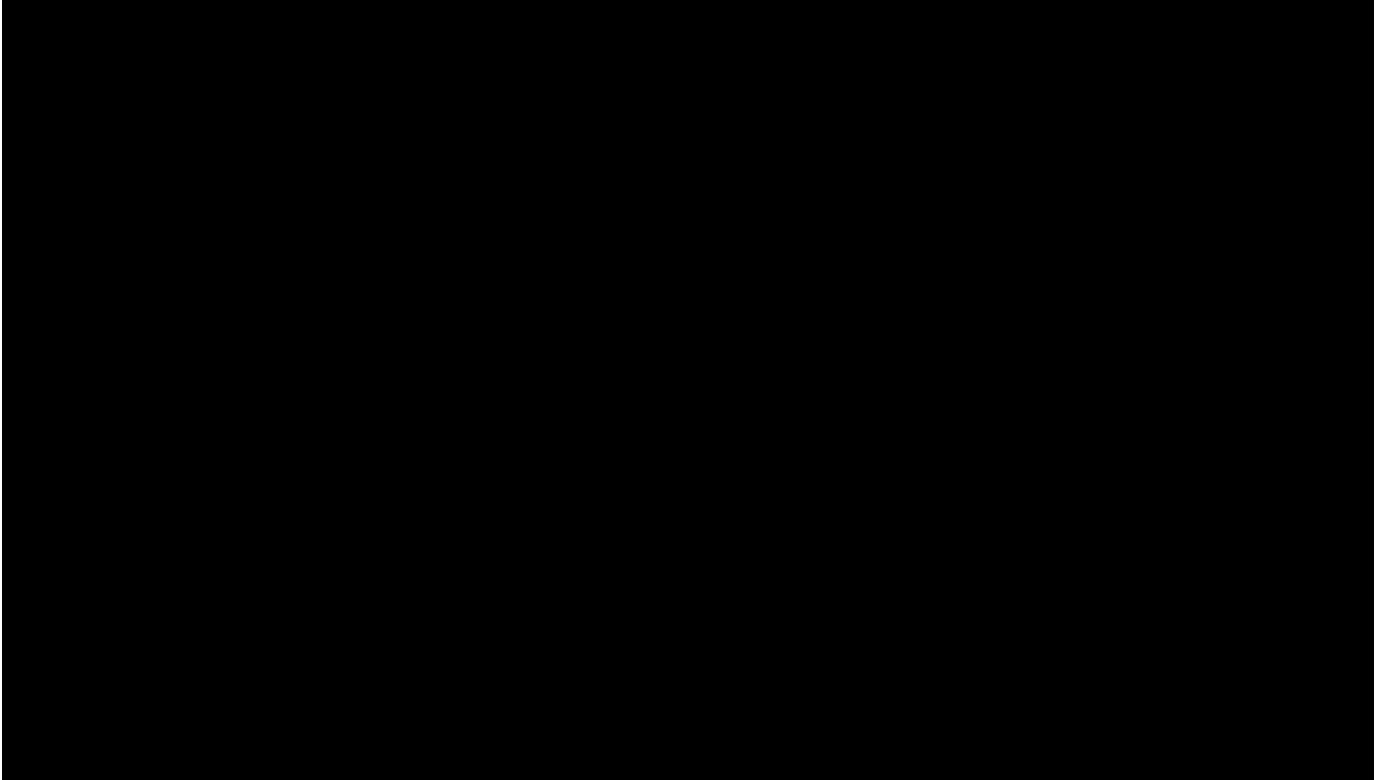
## 2.3 Issues

Changes in the queue require re-doing the FICS analysis and cost estimates.

Flicker management is a new use case for FICS and requires additional analysis and testing to prove its effectiveness.

## 3.0 Work Plan

### 3.1 Budget Review



## 3.2 Updated Work Plan

Table 2: Work Plan

Activity	Q2 2017	Q3 2017	Q4 2017	Q1 2018
Site Acceptance Test (Site 1)				
Construction (Site 1)				
Operation (Site 1)				
Agreement Execution (Site 2)				
Acceptance Tests (Site 2) <sup>1</sup>				
Construction (Site 2) <sup>2</sup>				
Operation (Site 2) <sup>3</sup>				

## 3.3 Next Quarter Planned Activities

In Q2 2017, the project team aims to complete the following tasks:

- Install and configure DER #1 servers, panels, and firewalls at NYSEG
- Commission DER #1 system at NYSEG
- Perform DER #1 Site Acceptance Tests (SAT) and integration testing with NYSEG meters and controllers. Field devices will be commissioned later when the site is ready.
- Progress on DER #1 substation, line, and point of connection designs.
- Execute FICS agreement for DER #2
- Screen additional interconnection requests for applicability of ANM
- Start implementation of integrated interconnections solution if NYSERDA proposal is accepted

<sup>1</sup> Assumes agreement execution 2Q2017

<sup>2</sup> Assumes agreement execution 2Q2017

<sup>3</sup> Assumes agreement execution 2Q2017



## 4.0 Conclusion

Addressing flicker limitations with FICS will require additional analysis and testing, but it has the potential to increase DER capacity even further.

Changes in interconnection queues require revised analyses and cost estimates.

Lessons learned from the NYSERDA PON 3397 proposal have the potential to greatly increase the efficiency of processing and analyzing DER interconnection requests, including ANM analysis.