

## **Reforming the Energy Vision**

Demonstration Project Q3 2016 Report

CONFIDENTIAL

---

# **Flexible Interconnect Capacity Solution**



## Table of Contents

1.0	Executive Summary.....	3
2.0	Demonstration Highlights since the Previous Quarter.....	4
2.1	Activity Overview .....	4
2.1.1	FICS DER #1 .....	4
2.1.2	FICS DER #2.....	4
2.1.3	Other Activity .....	4
3.0	Work Plan.....	6
3.1	Budget Review.....	6
3.2	Updated Work Plan.....	6
3.3	Next Quarter Planned Activities .....	7
4.0	Conclusion / Lessons Learned .....	8

## 1.0 Executive Summary

The Flexible Interconnect Capacity Solution (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 New York State Electric and Gas Corporation (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.

At the end of Q2 2016, agreements were provided to each of the two demonstration sites. The solar photovoltaic site developer has signed the agreement, but the farm waste generator site developer agreement is still pending. Also, the development of the PV site is delayed pending environmental permitting. The permitting survey should be completed in Q2 2017, with potential remediation to follow.

During Q3 2016, the project team advanced technical implementation of the ANM platform for the 2 MW PV farm project. The building and configuration phase of the platform progressed with the construction and configuration of the ANM platform and applications, and with the completion of Factory Acceptance Tests (FAT) against approved test specifications.

Subsequent to the successful completion of FAT for the PV project, plans for 4Q 2016 include:

- Ship servers and production panels to NYSEG
- Install and configure servers and panels at NYSEG
- Commission system at NYSEG
- Perform Site Acceptance Tests (SAT) and integration testing with NYSEG meters and controllers. Field devices will be commissioned later when the site is ready.
- Screen additional interconnection requests for applicability of ANM

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

Activity and results during Q3 2016 include:

- Completed construction and configuration of the ANM platform and applications for the PV farm.
- Completion of Factory Acceptance Tests (FAT) for the PV farm against approved test specifications.

### 2.1 Activity Overview

#### 2.1.1 FICS DER #1

On June 28, the 2 MW PV farm developer executed a FICS agreement with NYSEG. On July 21, NYSEG was informed that the 2 MW PV farm project was on hold for up to nine months due to environmental permitting and the necessary evaluations. 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.

#### 2.1.2 FICS DER #2

On June 29, NYSEG issued a proposed FICS agreement for a 450 kW farm waste generator. NYSEG 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.

To date, the customer has not executed the agreement and so, NYSEG has deferred construction, configuration, and testing the ANM platform for this project pending execution of the FICS agreement.

#### 2.1.3 Other Activity

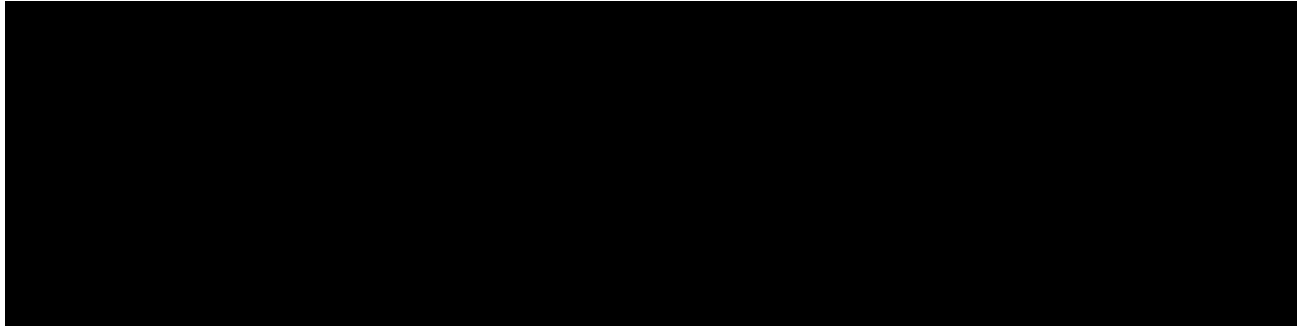
In light of the project delays and deferrals noted above, NYSEG is preparing to screen additional interconnection requests for applicability of ANM. A change order has been drafted by Smarter Grid Solutions (SGS) to provide expertise in screening and planning of DER projects for flexible interconnection. Priorities during this activity will include:

- Evaluate and prioritize potential FICS DER;
- Capture the current processes for DER interconnection screenings and work with the planning team to make suggestions for “manual” FICS screenings;

- Suggest improvements for automating interconnection screenings;
- 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.

### 3.0 Work Plan

#### 3.1 Budget Review



#### 3.2 Updated Work Plan

Activity	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Factory Acceptance Test (Site 1)	■					
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>						■

<sup>1</sup> \* Assumes agreement execution 4Q2016

<sup>2</sup> \* Assumes agreement execution 4Q2016

<sup>3</sup> \* Assumes agreement execution 4Q2016

### 3.3 Next Quarter Planned Activities

In Q4 2016, the project team aims to complete the following tasks:

- Ship DER #1 servers and production panels to NYSEG
- Install and configure DER #1 servers and panels 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.
- Screen additional interconnection requests for applicability of ANM

## 4.0 Conclusion / Lessons Learned

To date, over 700 interconnection applications have been evaluated to arrive at the candidate projects described above. As expected, many of the applications do not have grid constraints and many others have steady-state or flicker constraints that would not be resolved by ANM. However, this review of applications has resulted in the additional observations noted below.

- The portability of solar PV development poses challenges. Developers can choose alternative sites where firm capacity is available.
- Additional FICS candidate selection is inhibited by the large number of queued projects. Feeder DG capacity is already consumed by projects in queue, although some may ultimately be cancelled.
- Applications are concentrated among a few developers with substantial PV capacity cleared for interconnection.