

## **K. JEFFREY BALLARD**

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### **PROFESSIONAL EXPERIENCE**

#### **IBERDROLA USA MANAGEMENT CORPORATION**

##### **2011 – Present VP – Operations Technology & Business Transformation**

- Responsible for enterprise:
  - Operational Technology strategy and service delivery
  - Business Transformation programs
  - Process optimisation
  - Global integration
  - Strategic planning

##### **2010-2011 VP – Information Technology**

- Responsible for IT strategy and service delivery for Iberdrola USA

#### **UTILITY SHARED SERVICES 2003–2009**

##### **2009 -2009 Director – IT Infrastructure Utility Shared Services**

- Responsible for all IT Infrastructure for the Energy East regulated utilities

##### **2003 -2009 Director – Networking Services**

- Responsible for all Networking, Telecommunications, Network Security, and IT Operations for the Energy East regulated utilities

#### **CENTRAL MAINE POWER COMPANY 1984–2001**

##### **2001 – 2003 Manager – Computing and Network Services**

- Responsible for all IT Infrastructure and Operations for Central Maine Power Co.

##### **1998 – 2001 Manager – Network and Desktop Services**

- Responsible for all Network, Telecommunications and Desktop Infrastructure, and Service Desk support for Central Maine Power Co.

##### **1996 – 1998 Manager – Network Services**

- Responsible for all Network, and Telecommunications infrastructure for Central Maine Power Co.

##### **1993 – 1996 Network Specialist (Team Lead)**

- Responsible for all Network, and Telecommunications infrastructure for Central Maine Power Co.

##### **1993 – 1984 Various Technical Positions**

- Engineering Assistant, Electronics Technician, Telecom Specialist

### **EDUCATION**

**BS, Business Administration-Management**, University of Maine, Augusta ME  
**Associate in Applied Science, Electrical Technology**, Southern Maine Technical Institute

#### **Professional Development**

IMD Business School – Iberdrola Global Leadership Program (2012)  
nGenera – Concours Senior IT Leadership Program (2008)

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**LANEY W. BROWN**

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**PROFESSIONAL EXPERIENCE**

- 12/12 – Present     **Iberdrola USA Management Corporation**  
**Director, Smart Grid Planning and Programs**
- Responsible for developing and implementing the IUSA’s enterprise strategy for Smart Grid solutions.
  - Lead for Iberdrola USA in the New York PSC’s “Reforming the Energy Vision” (REV) proceeding
  - Develop and support Iberdrola USA’s Future Utility Model strategy
- 7/10 – 12/12     **Central Maine Power, affiliate of Iberdrola USA**  
**Director, Advanced Metering Infrastructure (AMI) Program**
- Led the on-time, on-budget delivery of the AMI program
  - Led the successful execution of the Department of Energy (DOE) Smart Grid Investment Grant application with an award value of \$96m
  - Led the vendor selection and contract negotiations for key Smart Meter vendors
  - Responsible for full compliance with the DOE grant obligations
- 5/04 – 7/10     **Manager, Marketing**
- Led the business case development of Advanced Metering Infrastructure
  - Project lead for the implementation of enhanced payment options products ensuring the on-time delivery of the expanded payment options for web, call center and IVR
  - Planned and developed marketing and communication strategy for the enhanced payment options based on unique customer and channel segments  
Responsible for the development and implementation of the marketing strategy and communication plan to all residential and small business customers;
- 4/00-4/04     **LinxTelecom, Amsterdam, Netherlands**  
**Director of Marketing**
- Responsible for the strategic assessment of LinxTelecom’s target market to determine viability of the business plan; assessment included defining the addressable market size, product strategy, and projected market share
  - Presented the company’s strategy, positioning and market assessment to financial institutions in New York, London, Paris, Berlin, and Amsterdam
  - Conducted due diligence on regional telecom-related companies to identify acquisition opportunities
  - Developed and maintained the pricing structure and strategy for the LinxTelecom product portfolio

6/99-4/00

**Qwest, Denver, CO**

**Director, International Product Management**

- Launched Qwest/KPNQwest product portfolio within one year of the joint venture
- Led a cross-functional team of managers in defining and documenting order-to-bill processes for all international products
- Developed ongoing product and market strategy based on financial and market analysis
- Responsible for the end-to-end product management of Qwest's International Data products

4/95-6/99

**Global One, Reston, VA**

9/97-6/99

**Senior Manager, Marketing Strategy**

- Participated in the 15-member team from Global One, Sprint, Deutsche Telecom and France Telecom to develop Global One's 5-year business model
- Coordinated the market analysis and product strategy for 15 major countries through Europe, Asia, Middle East and South America
- Designed and managed revenue reporting for the company's global marketing campaigns to measure major indicators such as revenue, ROI, churn and retention
- Responsible for the launch and maintenance of Global Calling Card marketing campaigns worldwide targeting over 2 million customers in 13 languages

4/95-9/97

**Marketing Program Manager for Russia, India, Middle East, Africa**

- Projected and achieved specific revenue and retention rate goals by targeted direct mail communications to the existing customer base; increased incremental revenue by over \$2M and decreased attrition by 3%
- Responsible for the region's annual revenue forecasting process
- Managed on-going sales programs for all marketing channels within the region

9/93-4/95

**International Seminar Design, Inc., Washington, DC**

**Senior Program Director**

- Established in-house marketing and design programs which directly increased client base by over 150%
- Oversaw logistics and contractual agreements with international vendors

**EDUCATION:**

**University of Strathclyde Business School, Glasgow, Scotland**

**University Pontificas Comillas ICADE, Madrid, Spain**

Double MBA with a focus on the Global Energy Industry

Expected completion, November 2015

**Colby College, Waterville, ME, 1990**

BA awarded in English and American Studies

Cum Laude with Honors Distinction in English and American Studies

**Harvard Executive Program on Negotiation, 2008**

**Iberdrola Leadership Essentials Program, 2011**

**BOARD MEMBERSHIP:**

Chair, University of Southern Maine Applied Energy Education Advisory Council  
PowerHouse Advisory Committee, Gulf of Maine Research Institute

**RECOGNITION**

2012 Top National Smart Grid Professional, IntelligentUtility Magazine  
2015 Smart Grid Pioneer, Smart Grid Today

**LINDA C. SAALMAN**

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**PROFESSIONAL EXPERIENCE**

**ROCHESTER GAS AND ELECTRIC CORPORATION (RG&E) 1976-present**  
**2013-present Manager, Project Portfolio**

- Manage Program Management Department for New York State Electric & Gas Corporation (NYSEG) and RG&E
- Internal project manager for Reforming the Energy Vision
- Oversaw NYSEG/RG&E Management Audit project management transition from Linda Saalman to Gary Dunkleberger
- Oversaw NYSEG/RG&E CEO Certification Project
- Member NYSEG/RG&E Emergency Management Operating Council
- Managed IUSA Networks Operations Excellence Project

**2004-2012 Manager, Programs/Projects**

- Managed NYSEG/RG&E Management Audit
- Managed NYSEG/RG&E compliance with Energy Efficiency Portfolio Standard and oversaw transition from project to permanent department
- Managed RG&E Recovery Act 1603 Program Hydro Project
- Managed NYSEG Mobile Radio Project
- Represented NYSEG/RG&E in Renewable Portfolio Standard proceeding

**1991-2004 Analyst and Management Positions**

- Managed RG&E Ginna Refund Project
- Represented RG&E in the Competitive Opportunities proceeding
- Managed RG&E Scenario Group (business strategies)
- Managed RG&E Planning and Process Development Department
- Managed RG&E Energy Choice Project (electric retail access implementation)
- Developed single-retailer retail access model and provided expert testimony in Case 96-E-0898
- Supervised RG&E electric and gas sales forecasting
- Chaired New York Power Pool Generation Planning Advisory Subcommittee
- Managed RG&E's first all-source (supply and demand) competitive supply bidding program and first Integrated Resource Plan, and provided expert testimony in Case 92-E-0740

**1976-1991 Various**

- Responsibilities in the areas of environmental licensing, demand-side management planning and data management, internal auditing, document management, research and development, and technical communications.

**EDUCATION**

MBA, Operations Management, University of Rochester, Rochester, NY, 1984.  
BA, Geology, University of Rochester, Rochester, NY, 1974.

**PROFESSIONAL AFFILIATIONS**

Current member – Project Management Institute  
Former member – Institute of Internal Auditors

**JOSEPH J. SYTA**

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**PROFESSIONAL EXPERIENCE**

**ROCHESTER GAS AND ELECTRIC COMPANY (RG&E)**

**NEW YORK STATE ELECTRIC & GAS CORPORATION (NYSEG) 1985 – present**

**2004–present Vice President, Controller and Treasurer – NYSEG and RG&E**

- Litigation and negotiation of various regulatory proceedings, including rate cases
- Responsible for Operating Company accounting and finance processes included below under Controller and Treasurer
- Company executive responsible for Management Audit
- Led team responsible for sale of Ginna nuclear plant
- Fiduciary Committee member
- Executive Load Forecast Committee member

**2002-2003 Controller and Treasurer – NYSEG and RG&E**

- Responsible for all accounting and finance functions with direct responsibility for a 120 person staff, including
  - Cash Management and Remittance Processing
  - Internal and External (SEC, FERC, PSC) Reporting
  - Affiliate Accounting
  - Budgeting
  - Taxes
  - Payroll
  - Accounts Payable
  - Property Accounting
  - Insurance
- Litigation and negotiation of various regulatory proceedings, including rate cases
- Interface with external auditors

**2000-2002 Assistant Controller – RG&E**

- Litigation and negotiation of various regulatory proceedings, including rate cases
- Led team responsible for sale of Nine Mile Point 2 nuclear station
- Prepare forecasts for business planning and regulatory purposes.
- Responsible for all accounting functions

**1992-1999 Manager Corporate Accounting – RG&E**

- A variety of corporate accounting and regulatory responsibilities

**1988–1992 Manager – Property Accounting – RG&E**

- Tracking of over \$2 billion in plant assets
- Implemented a new depreciation system

**1985–1988 Manager, Financial Systems – RG&E**

- Implemented and maintained new accounting systems

**EDUCATION**

**MBA, Accounting**, William E. Simon School, University of Rochester - 1992

**BS, Management**, Rensselaer Polytechnic Institute, Troy, NY - 1979



# The Energy Smart Community REV Project

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## 1. Executive Summary

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*“The boldness of our solution should match the magnitude of the challenges.”*

-SHAPING THE FUTURE OF ENERGY: 2014 DRAFT NEW YORK STATE ENERGY PLAN<sup>1</sup>

The New York Public Service Commission (“PSC” or “Commission”), under the guidance of the NY Governor’s office, is conducting a major generic proceeding intended to improve electric distribution service, introduce more distributed and renewable energy resources, and reduce costs for customers across New York State. In the “Reforming the Energy Vision” proceeding (“REV”), the Commission is introducing new market structures for utilities and vendors of energy-oriented products and services organized around six key policy objectives:

1. Enhance customer knowledge and provide tools to support effective management of energy bills;
2. Animate a market for energy products and services, leveraging ratepayer contributions;
3. Improve the efficiency of the distribution system;
4. Increase fuel and resource diversity;
5. Improve system reliability and resiliency; and
6. Make significant strides toward reducing carbon emissions.<sup>2</sup>

In a February 26, 2015 Order in the REV proceeding, the Commission confirmed that the New York distribution utilities will serve as Distribution System Platform (“DSP”) operators, while continuing to perform their traditional role of providing safe and reliable access to electricity for all customers.<sup>3</sup> The DSP role incorporates several new planning and operational concepts. First, the utilities will develop and implement a new integrated distribution system planning approach in which distributed energy resources (“DER”) will become viable planning options to address distribution network needs. Second, the DSP will provide the market platform and mechanisms that encourage third-party suppliers to develop and offer energy-related products and services that provide value to customers and to the system as a whole. Third,

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<sup>1</sup> New York State Energy Planning Board. Shaping the Future of Energy: 2014 Draft New York State Energy Plan, Volume 1. 2014.

<sup>2</sup> New York Public Service Commission. Order Establishing Proceeding. Case 14-M-0101, April 24, 2014.

<sup>3</sup> New York Public Service Commission. Order Adopting Regulatory Policy Framework and Implementation Plan (the “Track 1 Order”). Case No. 14-M-0101, February 26, 2015.

fulfilling the role of DSP will require new grid operations to support the provision of safe and reliable service in a more dynamic, market-driven environment.

REV intends for customers to become informed participants, engaging in energy efficiency, demand response, distributed generation, energy storage, and other DER products and services. When addressing network constraints and other localized distribution system issues, utilities will be expected to apply new distribution system planning processes that consider “non-wires” alternatives to defer or obviate the need for traditional utility network investments. Customers will benefit from new products and services offered by utilities and third parties through tariff or market mechanisms. Utilities will continue to recover their investment costs through distribution rates, but may also be able to offset a portion of any incremental REV-supportive investments through new fee-based transactional services.

Iberdrola USA Networks (“IUSA Networks” or “the Company”) has developed an Energy Smart Community Project (the “Energy Smart Community” or the “Project”) to serve as a platform for initiatives and technologies that will test these REV concepts and to advance the Company’s ability to serve as DSP. This role will require investments and development in people, processes, and technologies. Leveraging a small-scale environment to build the knowledge and expertise in the role will help support the Company’s transition to serving as the DSP operator on a larger scale.

Equally important, the Energy Smart Community will, as a test-bed environment, enable the identification of methods that successfully engage customers, the community, and the market. Moreover, a “community-based” approach will create an attractive test environment for market partners willing to invest in New York’s electricity industry. This approach allows the Company to deploy certain foundational investments in a concentrated geographic area. Lessons learned from the targeted technology deployment will help shape strategies for technology utilization and will ensure a more effective and efficient deployment throughout the Company’s service territories.

The Energy Smart Community scope consists of program elements that address the three main aspects of the Company’s ability to serve as the DSP operator: (1) implement new processes and tools for integrated distribution system planning, (2) support customer and third-party engagement in market operations, and (3) operate the grid efficiently and reliably. The DSP framework provides a structure to demonstrate the key REV elements— customers, market, and the DSP—that are envisioned in Track 1 of REV.

In developing the Project’s scope, the Company has outlined roles for the program elements. Some program elements will be designed, implemented, and managed by the Company without significant involvement of community or market partners. These elements will involve the integration of foundational investments in technologies and systems that will

allow the Company to test REV initiatives. Other program elements will build on the extensive collaboration already taking place between the Company and leaders in the community. Finally, several program elements will leverage market partners interested in proposing market-based solutions to address customer and system needs.

The Company has selected the Ithaca region as the host location for the Energy Smart Community primarily due to its ongoing interest and proactive approach to energy and sustainability initiatives. Tompkins County, the City of Ithaca, and the Town of Ithaca have each established comprehensive energy and sustainability plans that are aligned with REV principles. The Energy Smart Community will enable Ithaca and Tompkins County to make significant strides toward their energy and sustainability goals. Ithaca is the home of Cornell University, a major research institution that has made significant commitments to energy and sustainability goals through its Climate Action Plan, research initiatives, local collaborative initiatives with entities in the Ithaca region, and through its Atkinson Center for a Sustainable Future (“Atkinson Center”). Leaders from these institutions and organizations have engaged with the Company and act as partners in the Energy Smart Community.

The Company continues to refine its plans for the Project, including ongoing development of component elements. The Company currently envisions implementing the Project in phases over a four-year period, beginning with the planning stages that are currently underway. At this time, the Company is focused on working with community partners to define roles and opportunities that will be further refined as the Project is deployed. In addition, the Company will continue to develop its governance structures and communications plans for the Project.

As noted in the Commission’s Track 1 Order, both NYSEG and RG&E are required to develop and file demonstration projects on July 1, 2015. The Company intends to leverage the Energy Smart Community location, foundational investments, and engagement concepts to support initial demonstration projects and additional demonstration projects to be designed later. In collaboration with the community and university partners, the Company has identified the development of a community-focused Integrated Distribution System Planning process (“Integrated Plan”) as a foundational step in the Energy Smart Community. Development of the Integrated Plan will serve as an opportunity to collaborate with motivated market and community partners and will leverage the existing energy and sustainability plans that have been developed by Tompkins County, the City of Ithaca, the Town of Ithaca, and Cornell University. The Company may choose to propose the Integrated Plan as one of its demonstration projects on July 1, 2015.

## 2. Introduction

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The design of the Energy Smart Community Project reflects the Company's commitment to building the capabilities required to serve customers as the DSP operator, to enable community-based energy goals, and to enable new markets for energy products and services in New York.

### A. Regulatory Context

In April 2014, the Commission commenced the "Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision" (REV).<sup>4</sup> Through REV and a variety of related policy proceedings, the Commission has expressed the conviction that "business as usual" is not sustainable for electric utilities due to a number of factors, including the effects of extreme weather events, declining demand growth, customer expectations regarding reliability and resilience, and aging infrastructure.

The REV proceeding is an ambitious endeavor with a broad reach. The proceeding has the potential to realign the State's electric utility industry and its regulatory paradigm through recognition of technological advances in information management, energy distribution, and distributed power generation. The proceeding envisions an array of new business models and practices with the utility serving as DSP. In this role, the Company will implement new methods of integrated distribution system planning, facilitate and manage competitive markets for products and services that support the distribution system, and perform new grid operations that promote the widespread integration of DER within its service territories.

REV's success will depend on whether it delivers measurable value to customers relative to their total expenditures on energy-related products and services. This value will come from giving customers greater control over how they consume and produce energy, while enabling the utility to monitor and control the impact of consumer actions on the integrity of the grid. At the same time, the utilities must maintain safe and reliable service, and produce revenue streams that will help finance additional enabling investments, spur innovation, attract competitive suppliers, and lead to the introduction of valued products and services.

The Company views well-conceived REV projects as essential to informing the full transition to REV with real-world experience gained from new roles, responsibilities, and activities performed on a manageable scale. The Energy Smart Community is a platform to implement and deploy initiatives in a community that shares a common vision for sustainability and long-term energy planning. The Energy Smart Community will test the hypothesis that a

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<sup>4</sup> Reforming the Energy Vision: NYS Department of Public Service Staff Report and Proposal. Case 14-M-0101, April 24, 2014.

community-based approach to REV implementation is effective and efficient, and can be applied in other service areas by building on the lessons learned from a community-scale deployment.

## **B. Organization of the Report**

The remaining sections describe the Energy Smart Community Project in detail. Chapter 3 describes the purpose of the Project and the key objectives of stakeholders (i.e., the objectives of the Company, community, Cornell, key market partners crucial for successful introduction of market functionality into energy services, and customers, who benefit the most from the Project and from REV). Chapter 4 describes the benefits of the Ithaca region as the host location for the Energy Smart Community and the extraordinary interest expressed by Tompkins County, the City of Ithaca, the Town of Ithaca, and Cornell University in partnering with the Company to plan and implement the Project.

Chapter 5 discusses the current scope of the Energy Smart Community. Elements of the scope may be refined and prioritized within the overall budget as the Project matures through ongoing discussions taking place between the Company and its community and market partners. Chapter 6 describes the phased deployment plan for the Project, and addresses the Company's outreach and communications plans that will ensure customers and potential market participants are aware of the plans and opportunities that are available to them. Chapter 7 presents the current expected costs for the Energy Smart Community and discusses the approach the Company is proposing in its rate case filing related to recovery of the Project's costs.

### 3. The Energy Smart Community REV Project

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The Energy Smart Community will serve as a test-bed for a variety of REV initiatives, including the Integrated Plan concept, testing of alternative customer engagement and service delivery models, and the ability of the Project to enhance existing community energy and sustainability plans. The Project will also support other program elements that prepare the Company to serve as DSP.

Elements of the Energy Smart Community scope will continue to be refined as project development continues. However, regulatory approval for the Project will be required to support development of the Project beyond the initial planning stages that are currently underway.

#### A. Advancement of REV - Policy Goals

The Company designed the Energy Smart Community to advance the energy policy goals set by Governor Cuomo and the Commission. Specifically, the Project considered the following high-level REV policy goals:

1. *Enhance Customer Knowledge and Provide Tools to Support Effective Management of Energy Bills*

Certain foundational investments will facilitate access to information that will enable consumers and third-party providers to obtain and provide products and services that offer value. Customer research and engagement will identify the most effective means of transitioning customers from consumers to “prosumers.”

2. *Animate a Market for Energy Products and Services, Leveraging Ratepayer Contributions*

The Company’s efforts throughout the Energy Smart Community will focus on building robust and sustainable markets that support continued innovation.

3. *Improve the Efficiency of the Distribution System*

Development of an Integrated Plan process will support a variety of efficiency-oriented initiatives, including deployment of Volt/Volt-Ampere Reactive (“Volt/VAR”) capabilities, behavior-based demand response programs that leverage more granular data, and time-based pricing programs. Other technologies will provide customers with insights into their energy use that will enable them to reduce peak demands, supporting a more efficient and cost-effective use of energy resources.

*4. Increase Fuel and Resource Diversity*

The Energy Smart Community will expand fuel and resource diversity by supporting “non-wires” project opportunities. The Energy Smart Community’s Integrated Plan will consider fuel and resource diversity when evaluating solutions.

*5. Improve System Reliability and Resiliency*

Targeted Smart Grid investments in the Energy Smart Community will support increased levels of automation, visibility, and information that enable faster assessment and restoration of outages. Additionally, support for proposed microgrids (through NYPrize) could lead to increased levels of resiliency.

*6. Make Significant Strides toward Reducing Carbon Emissions*

The Energy Smart Community will support rooftop and community solar systems, distribution-level demand response, energy efficiency, and other DER. Moreover, the Project will engage consumers and third-party providers with high-resolution data about their energy use, enabling consumers to conserve energy and reduce peak load.

## **B. Company Objectives**

The Company has identified several primary objectives for the Energy Smart Community Project:

1. Gain real-world experience performing the role of DSP operator on a small scale to identify best practices for fulfilment of the DSP role;
2. Create a test-bed for REV initiatives using foundational investments that will advance the REV vision;
3. Establish and implement interconnection standards and best practices to facilitate the installation of DERs where they provide the most value to the distribution system;
4. Enable community sustainability plans and initiatives;
5. Identify business models through which the Company can best engage market partners; and
6. Identify changes to the Company’s business practices that could deliver net benefits for customers.

The foundational investments that will be deployed in the Project include Advanced Metering Infrastructure (“AMI”), grid automation, and associated communications systems. In addition, the Company will work collaboratively with Cornell and the community to develop an Integrated Plan for the Ithaca region that will become the foundation for future community engagement and enablement. Finally, the Company will implement customer and communications research to identify and better understand the most effective engagement strategies.

The Company has included a number of market driven program elements that represent opportunities for DSP market coordination and collaboration. The Company will support market participants interested in engaging and investing in and delivering program elements. The Company is currently working with a number of market participants on program design elements that will develop new markets. Initiatives of this type, when implemented, will provide the Company with experience managing and operating new markets and effectively engaging partners to develop new competitive market opportunities. The Company anticipates leveraging public and private partnerships to financially support the delivery of market opportunities and to moderate any cost impacts on electric customers.

### **C. Stakeholder Objectives and Value**

The Energy Smart Community's success will depend on the degree to which it is able to achieve a significant level of stakeholder engagement. The Company will continue to work with stakeholders to clarify and align the Energy Smart Community objectives with existing community plans and initiatives.

#### *Community and University Partner Objectives*

Tompkins County, the City of Ithaca, and the Town of Ithaca have each developed energy and sustainability plans that contain a variety of initiatives that are aligned with New York's REV goals. The Company and the community partners will work collaboratively to advance the regional plans for sustainable development, integrate renewable power, and promote energy efficiency and demand management. Ithaca's leaders have stated that building partnerships to achieve its goal of reducing Greenhouse Gas ("GHG") emissions by 40% by 2025 is an important strategic objective of the community's Energy Action Plan.

Tompkins County has progressive energy and sustainability goals that were recently codified in the county's 2015 Comprehensive Plan. The county is committed to making the region "[a] place where energy needs are increasingly supplied or reduced by conservation, efficiency, renewable technologies and smart development,"<sup>5</sup> values that are well aligned with the Company's plans for the Energy Smart Community and with REV.

As a leading research institution, Cornell envisions that the research support it provides to the Energy Smart Community will be of value on the campus, to the Town and City of Ithaca, and more broadly to the State of New York and beyond. Cornell is committed to energy sustainability, and views the Project as an opportunity to make meaningful progress toward the vision expressed in its Climate Action Plan, which calls for the campus to be completely sustainable and carbon neutral by 2035.<sup>6</sup> Finally, the Energy Smart Community will provide

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<sup>5</sup> Tompkins County Comprehensive Plan: Planning for Our Future, 2015.

<sup>6</sup> Cornell University. 2013 Climate Action Plan Update & Roadmap 2014-2015.

the university with an opportunity to demonstrate and promote its partnerships with private industry and its community.

### *Customer Objectives*

Customers will need to understand and engage in the initiatives that will help them manage their energy use and serve other related purposes. The Energy Smart Community will test approaches that may be used to help customers understand the value of available programs and specific means to control their energy costs. The Project will test the hypothesis that customers will be most likely to engage with value-based choices for electric service, including cost saving opportunities, environmentally conscious options, and programs designed to enable segments of the population with unique needs (e.g., low-income and elderly customers). By connecting customers and third parties that provide energy products and services, the Project will meet REV's intention of providing customers with access to methods and tools that can improve energy efficiency and lower total energy costs.

In addition, customers and other stakeholders remain concerned about information security and the protection of customer-specific data. The Company will ensure that its approach will be consistent with best practices already in place at Iberdrola USA Networks to ensure security and to comply with rules and standards associated with the provision of customer data.

### *Market Partner Objectives*

A primary objective of the Energy Smart Community for market partners is to ensure that they have access to new markets, retail customers, and the data needed to effectively engage those that will most benefit from energy services. The Company will collaborate with market partners to support market participation and to develop compensation models and mechanisms that will inform the evolution of a more robust market for energy products and services. Another key objective of the market partners is to maximize the opportunity to evaluate and refine new products in a test environment in order to prove the value of these technologies at scale.

The Company is developing market-based demonstration project concepts in preparation for the July 1, 2015 filing, as required by the REV Track 1 Order. The Company will have the opportunity to leverage the community and the Project to locate one or more demonstration proposals in the Ithaca region.

## **D. Applying Lessons Learned**

Capturing lessons learned is a priority for the Energy Smart Community Project. The Company and Project are focused on identifying key lessons related to the processes that will be used for integrated distribution system planning, customer engagement and market development,

and grid operations. These lessons will be applied both on an ongoing basis throughout the implementation of the Energy Smart Community and in the eventual deployment of REV concepts on a larger scale throughout New York.

The Company and Project organizations will continue to benefit from significant experience that has been gained from similar initiatives that have been implemented elsewhere. Experts from across the Company's affiliates will continue to provide guidance and thought leadership. Specifically, the Energy Smart Community Project will benefit from the experience gained through Central Maine Power's Smart Grid and AMI projects and ScottishPower's recent transition to new and innovative regulatory and business models. The Company is particularly interested in building on activities that have enabled customers to realize savings on the supply portion of their bills and to take advantage of online energy tools.

The Energy Smart Community Project team's planning activities and organizational structures are designed to integrate experience from earlier work into the Project to the degree possible to ensure that best practices are applied immediately and effectively.

## 4. Selection of the Ithaca Region for the Energy Smart Community

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The Companies have selected the region surrounding Ithaca, New York as the host community. This decision was motivated by a number of factors, including the existing energy and sustainability plans developed by the Town and City of Ithaca and Tompkins County. In addition, Cornell University has strong relationships within the community and offers strategic opportunities through its Atkinson Center, as well as its own forward-looking sustainability programs. These existing programs will be strengthened by partnering with Tompkins County, the City of Ithaca, the Town of Ithaca, and the Company. The Energy Smart Community will work collaboratively with its community and university partners to achieve progress toward their sustainability goals, making significant strides in implementing REV in the process.

The commitment of the community to the principles at the foundation of REV makes it an ideal location to serve as the test-bed for the solutions and technologies required to enable REV.

### A. Regional Energy and Sustainability Planning

Tompkins County, the Town of Ithaca, and the City of Ithaca have developed visionary energy and sustainability plans that contain a variety of initiatives aligned with New York's REV goals. The Company and the community partners will work collaboratively to advance the regional plans for sustainable development, integration of renewable power, and commitment to energy efficiency and demand management.

Tompkins County recently completed an update to its comprehensive plan that will help guide the Ithaca region's economic and industrial planning and development. Energy issues and climate protection initiatives have emerged as regional priorities: the County aims to become a place "where energy needs are increasingly supplied by renewable technologies or reduced by conservation and efficiency."<sup>7</sup> In addition, Tompkins County, the Town of Ithaca, and the City of Ithaca have each joined the New York State Department of Environmental Conservation's Climate Smart Communities program.

Ithaca will use the Energy Smart Community Project to focus the local community's energy-oriented efforts on engaging customers to become more active participants within the energy ecosystem through energy conservation, investing in energy efficiency, and initiating or participating in programs to bring more solar renewable power to the region. Ithaca's leaders

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<sup>7</sup> Tompkins County Comprehensive Plan: Planning for Our Future, 2015.

have stated that building partnerships to achieve of its GHG emissions reduction goal by 40% by 2025 is an important strategic objective of the community's Energy Action Plan.

Leaders from the Ithaca region have recognized that a "smart" approach to energy planning will satisfy multiple community objectives. Addressing both short- and long-term energy needs must be done in a way that contributes to the local economy. Ideally, pursuing distribution system expansion plans that take advantage of emerging technologies, products, and services can enable growth without the need for additional fossil-fueled power stations. In short, the Community will benefit from collaboration between businesses, non-profits, universities, and the Company.

The Company will work with community organizations on initiatives focused on economic development, energy, and climate issues. These organizations include a county Sustainability Center that provides a venue for the community to discuss programs focused on sustainability and the Tompkins County Climate Protection Initiative, which brings together stakeholders from business, non-profit, and educational institutions to form a unified coalition that can facilitate cooperation and make greater progress toward shared goals for the environment. In fostering markets for energy products and services, the Company can also work with organizations such as the Green Resource Hub of the Finger Lakes, a non-profit organization whose mission is to grow the market for products focused on sustainable living.

The Company's intention is to leverage and enhance the community's existing initiatives through the Energy Smart Community. As stated in the county's comprehensive plan, "[b]y combining efforts to reduce energy demand, transition to alternative energy sources, and prepare for the impacts of climate change, the community will be as prepared as possible to face the evolving climate and energy future."<sup>8</sup>

## **B. Cornell University: a Community and Research Partner**

Cornell University provides the Energy Smart Community with local access to a world-renowned research institution with a strong commitment to both scientific advancement and the community within which it is located. Dating back to its establishment as a land grant university in 1865, Cornell interprets its mission as encompassing community engagement and research that will promote improved quality of life for the people of New York and beyond. Cornell has built strong relationships with the Ithaca community and Tompkins County through its Office of Government and Community Relations and the county's Cooperative Extension Program.

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<sup>8</sup> Ibid.

In addition to its strong relationship with its local community, Cornell has demonstrated a compelling interest in partnering with the Company on the Project and, more broadly, in contributing to energy-related research. Given its strengths in engineering, agriculture, management, and life and social sciences, the university is uniquely positioned to address the wide breadth of energy-related issues that are relevant to REV. By way of example, Cornell President David Skorton recently announced the university's commitment to be carbon neutral by 2035.

Cornell's Atkinson Center encourages the formation of multidisciplinary teams, directly seeds innovative and impactful research, and seeks collaboration with external partners with shared aspirations for a sustainable future. Indeed, the expressed goal of the Atkinson Center is to "discover and implement sustainable solutions to world needs for reliable energy, a resilient environment, and robust economic development." These goals are aligned with the objectives established for REV.

As the Energy Smart Community Project develops, specific research directions that may be pursued in partnership with Cornell will be identified. In fact, in coordination with Atkinson Center leadership, researchers at the university have expressed interest in pursuing several initiatives that are aligned with elements that are currently under consideration for the Energy Smart Community. They are currently considering a mix of traditional funding sources, innovative funding strategies, and partnerships with industry to establish long-term funding sources that can leverage the Project's infrastructure as a living-learning laboratory. Consonant with its mission, the Atkinson Center has established a goal to incentivize new business opportunities, including start-up ventures, to the Energy Smart Community.

Initiatives that may be explored in partnership with Cornell University include:

- **Extension of the Cornell Campus Energy Community:** Use the knowledge and experience gained by the Cornell Energy and Sustainability Department in implementing smart buildings, demand management, local smart grids, and energy co-generation. Apply this knowledge and experience to the Tompkins County Model Community as appropriate. Leverage the synergies between Cornell's campus commitment to become carbon neutral by 2035 and the innovative planning, implementation, and behavior change occurring within the proposed Energy Smart Community.
- **Data Optimization from AMI:** Work with the City and Town of Ithaca, Ithaca College, the Company, and the community to define shared outcomes for the initial AMI implementation to enhance the likelihood that it will deliver on these objectives. Projects will range from data visualization and presentation, privacy issues and public acceptance, demand management incentives, and data mining and operational optimization.

- **Coordination of DERs:** Develop and test mathematical models and control algorithms to enable the scalable coordination of diverse distributed energy resources (e.g., rooftop solar, electric vehicles, and smart appliances), giving rise to largely self-sufficient communities that locally generate and consume the large majority of their power.
- **Market Design for Retail Energy Services:** Develop novel market constructs to enable the reliable procurement of energy and balancing services from flexible, demand-side resources. Particular emphasis will be placed on the incorporation of social and behavioral considerations into the incentive design.
- **District Energy Options:** Use a cascaded, integrated systems approach to model heating, cooling, and electricity infrastructure for clusters of high-efficiency, smart buildings.
- **Remote Building Audits:** Combine city and town data on building characteristics (square footage, use-type, apartment, single-family, etc.) with Company data on gas and electricity use.
- **Powerhouse Education Program for 7th and 8th Graders:** Work with Cornell's Cooperative Extension and Ithaca City School District (ICSD) to develop curricula, based on "Building Energy Autopsy", using thermal cameras and spot guns. Work with Cornell student volunteers to assist in content delivery.
- **Targeted Solar (With Emphasis on Low-Income Populations):** Develop/implement referral-chain sampling to identify key target market participants (early adopters and influencers) for solar, including the possibility of low-income and community solar. Establish best practices for low-income solar marketing.
- **Quantitative Assessment of Potential Environmental Impacts:** Assess the potential impacts from energy development and operations on wildlife and critical habitats. In general, this area has focused on issues related to environmental impacts from oil and gas activities, especially as they pertain to endangered and threatened species. These environmental impact issues also apply to renewable energy development and operations.
- **Assessment of the Transition & Transformation towards Energy Smart Communities:** Draw upon rapidly emerging social science research perspectives that engage the challenges and opportunities associated with community change, in general, and around energy-based change, in particular.
- **Energy Systems Engineering and Economics Research for Energy Smart Community:** Apply systems engineering and economics research methodologies to model the impact of smart energy changes within the community.
- **Community Relations:** Implement recognized techniques for assessing public attitudes toward smart communities. Disseminate optimal pathways for gaining public acceptance for efforts to achieve sustainability.
- **Electric Vehicle Infrastructure:** Electrify a significant portion of the region's transportation infrastructure. Develop charging stations and other infrastructure as

appropriate. Integrate activities with Ithaca CarShare and the ongoing Cornell effort to electrify a larger segment of its vehicle fleet.

- **Fuel Cell Based Vehicle Recharging Stations:** Work with Cornell and private industry to accelerate the use of fuel cell based transportation in the region.
- **Smart Grid Modeling:** Use systems engineering methodologies to model alternative smart grid configurations.

## 5. Energy Smart Community Scope

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The Energy Smart Community scope consists of program elements designed to build the Company's capabilities as the DSP, to meet REV policy objectives, and to meet the objectives of the Company's community, university, and market partners. Program elements are grouped into the three key DSP functions:

- **Integrated System Planning**, which includes initiatives and investments that will build and establish processes and best practices for system planning functions through an integrated, community-based approach;
- **Market Operations**, which include initiatives and investments that enable customer and community engagement as well as the development of competitive markets for energy products and services on the distribution network; and
- **Grid Operations**, which include initiatives and investments in automation and grid capabilities that will enhance how a more dynamic grid is operated and provide tools and information to customers and partners.

Program elements will be reviewed with DPS Staff, community and Cornell University leaders, and market partners in order to refine the scope and ensure that each element is positioned to enable long-term benefits for customers and REV. Upon receiving regulatory approval for the initiatives discussed below, the Company will proceed to the next stage of the Project's development.

## A. Satisfaction of REV Policy Goals

Each component of the Smart Energy Community project is designed to advance the policy objectives identified by the Commission in the REV proceeding. Figure 1, below, illustrates the contribution of initial program elements to the Commission’s stated objectives.

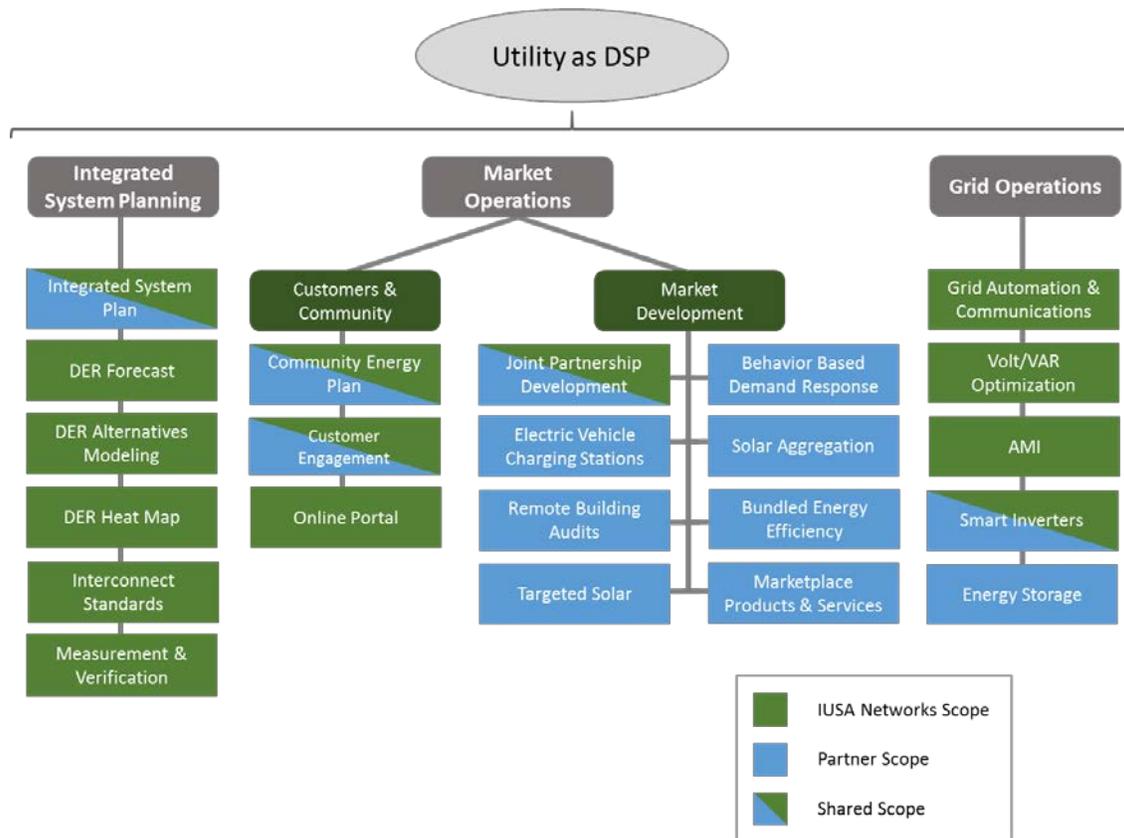
FIGURE 1: Initial Energy Smart Community program elements address high-level REV policy goals.

Key DSP Function:	Program Elements:	REV Policy Objectives:					
		Customer knowledge & tools	Market animation	System wide efficiency	Fuel & resource diversity	System reliability & resiliency	Reduction of carbon emissions
Integrated System Planning	Integrated System Plan	•	•	•	•	•	•
	DER Forecast			•		•	
	DER Alternatives Modeling			•	•	•	
	DER Heat Map		•	•	•	•	•
	Interconnect Standards		•				
	Measurement & Verification			•		•	•
Market Operations	Community Energy Plan	•	•	•	•	•	•
	Customer Engagement	•	•				
	Online Portal	•	•				
	Joint Partnership Development	•	•	•	•	•	•
	Electric Vehicle Charging Stations		•	•			
	Remote Building Audits	•	•	•		•	•
	Targeted Solar	•	•	•	•	•	•
	Behavior-based Demand Response	•	•	•	•	•	•
	Solar Aggregation	•	•	•	•	•	•
	Bundled Energy Efficiency	•	•	•	•	•	•
Marketplace Products and Services	•	•	•				
Grid Operations	Grid Automation & Communications			•		•	
	Volt Var Optimization			•	•	•	•
	Advanced Metering Infrastructure	•	•	•		•	
	Smart Inverters		•	•	•	•	•
	Energy Storage	•	•	•	•	•	•

## B. Smart Energy Community Program Elements

Figure 2, below, provides a framework for the organization of the Project into the key DSP functions. Discussions of program elements that will support the development of the Company’s experience providing these functions appear in the sections that follow.

FIGURE 2: Conceptual organization of Energy Smart Community into the key functions of the Company’s role as DSP operator



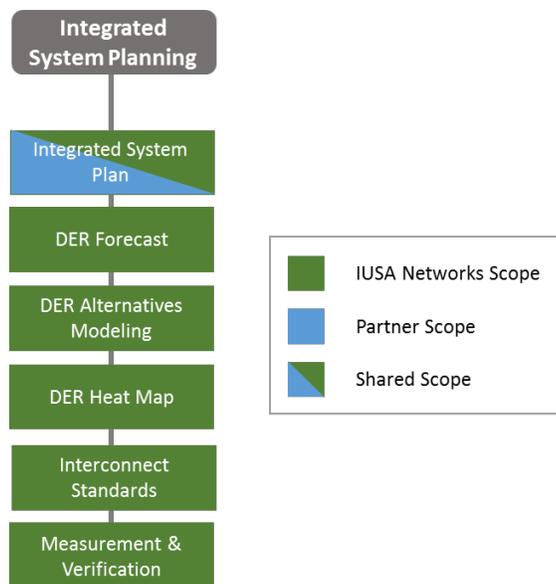
### *Integrated System Planning*

The Commission has stated that through the DSP’s role as the facilitator of energy-oriented markets, the DSP will continue to be accountable for distribution system planning and construction. The DSP’s planning process must be transparent and support the development of DER alternatives to meet emerging system requirements.<sup>9</sup> To meet these obligations, the Company must provide third parties with information pertaining to load expectations and contemplated system transmission and distribution upgrades (including detailed location information) so that market participants will be able to propose informed, market-based

<sup>9</sup> REV Track 1 Order.

alternatives.<sup>10</sup> The Energy Smart Community Integrated System Planning scope is intended to address these and other related needs.

FIGURE 3: Integrated System Planning Program Elements



Program elements that fall within the Integrated System Planning concept and related implementation processes include the following:

### 1. Integrated System Plan

The Integrated Plan concept is envisioned to involve close collaboration between the Company and community partners to create a shared five-year plan for Tompkins County. This plan will incorporate the distribution network plans, as well as community plans and goals. The plan will identify barriers and mitigation strategies and will include a holistic asset inventory and future planning scenarios. The integrated system plan will form the foundation for identifying opportunities for market-based solutions, and for the community and the Company to work together to address energy-related issues within the REV vision. The planning process will address community-based initiatives by delivering:

- More proactive information sharing to identify opportunities for renewable energy development, especially the siting of photovoltaic (“PV”) distributed generation;
- Support for microgrid development;

<sup>10</sup> Multi-year data will be available to market participants in Distributed System Implementation Plans (DSIPs), the first of which will be filed by each New York investor-owned utility on January 15, 2016.

- Support for the Community and University energy “roadmaps”;
- Optimized use of DER on the distribution network while maintaining reliability and safety for the Company; and
- Identification of best practices and integrated system planning processes that are applicable to planning in other regions within the Company’s service territories.

## 2. DER Forecast

The Company will work with key market and community partners to develop detailed forecasts of the deployment of a variety of distributed resources throughout the Ithaca region. Data that will be developed and made available to market participants will include, at a minimum:

- System loads and capital spending projections; and
- Load duration curves for individual feeders;
- Five-year forecasts of installed DER capacity based on input from community and market partners and expectations with regard to policy and market drivers.

## 3. DER Alternatives Modeling

The Company will conduct detailed modeling studies to evaluate the capability of DER portfolios (e.g., composed of solar, DR, storage, etc.) to meet system needs during periods of peak demand. Initiatives involved in this program element will include:

- Identification of the effectiveness of new technologies and non-traditional solutions to remediate loading, voltage, protection, and reliability issues;
- A process for monitoring DER attributes for model development, updates, and modifications; and
- Development of training programs for Company personnel that will inform the process for incorporating new interconnection criteria and non-traditional solutions into day-to-day planning procedures.

## 4. DER Heat Map

The Company will develop or acquire integrated system planning and analysis software tools for use in the Company’s planning processes. At a minimum, these tools will identify constrained regions on the distribution network and will be used to communicate system needs to market participants. This information will enable market and community partners to develop proposals for market-based DER alternatives to conventional investments on the transmission and distribution networks.

## 5. Interconnect Standards

The Company will collaborate with industry and market partners and the other New York investor-owned utilities to identify and implement interconnection standards and

best practices for use throughout New York State. The availability of standard interconnection processes will effectively remove existing barriers to the deployment of greater volumes of DER on local distribution systems.

## 6. Measurement and Verification

The Company will enact a set of processes for ensuring that DER implementations perform as required and verifiably alleviate constraints on the distribution system. The existence of robust measurement and verification protocols will ensure that the Company (as DSP) and customers receive value from DER deployments through the use of enhanced system information and individual customer load information.

Implementation of Integrated System Planning within the Energy Smart Community will provide a range of benefits:

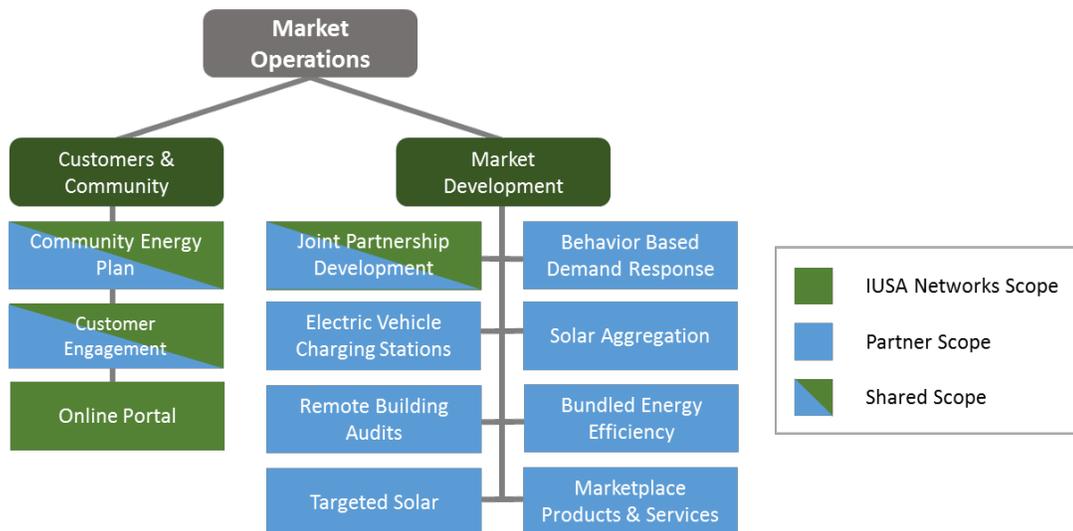
- A foundational plan to support the development of future Energy Smart Community initiatives and identify opportunities for the Company to support community plans;
- A transparent planning process that supports the development of DER alternatives, enables interactions with competitive suppliers of resources to meet distribution system needs, and satisfies the Track 1 order;
- An plan that supports REV policy goals, including system efficiency and market animation;
- Processes to enable the participation of market solutions, including energy efficiency and demand response services; and
- Planning practices that may yield lower cost infrastructure potentially resulting in lower customer bills.

## Market Operations

The creation and facilitation of market mechanisms is a central tenet of the Commission’s vision for the DSP under REV. The Company will work with community, university, and market participants to explore a variety of market development strategies to better understand the market features and transaction fundamentals that enable the market. The program elements under Market Operations include all the entities required to establish a market: the customer, the community, and third-party market participants. The customer and community elements are focused on understanding the most effective means of engaging customers and the community to become market participants. The Market Operations program elements seek engaged and interested market participants to develop new products and services that will address customer and community needs. Market Operations program elements that are currently envisioned for the Smart Energy Community are illustrated in Figure 4.

In addition to transacting with the DSP through these procurement mechanisms, vendors may also choose to develop product offerings and pricing through direct-to-consumer marketing efforts.

FIGURE 4: Market Operations Program Elements



### Market Operations Focused on Customers and the Community

Community and customer-oriented program elements support the REV goal of leveraging public and private partnerships to support the achievement of energy goals at a community and state level. The program elements that follow will be completed by the Company in collaboration with community and university leaders.

## 1. Community Energy Plan

The Community Energy Plan will build from the Integrated Plan and will be the implementation schedule for the opportunities identified in the Integrated Plan. The plan initiatives will leverage the information gained through the DSP investments to support strong community and university initiatives and plans and will include both annual targets and defined measures of success.

The Community Energy Plan program element will be instrumental in creating active participation from multiple stakeholders and leveraging their contribution to the overall Energy Smart Community. This program element will include the following initiatives:

- Facilitate the development of an Energy Smart Community action plan that is coordinated with the community partners' existing energy plans;
- Collaborate with stakeholders to develop annual targets and measures of success for Project-enabled energy initiatives;
- Establish and implement an engagement plan to ensure transparent communications on planning, deployment, community and customer efforts, and results; and
- Offer workshops to other (targeted) communities in the Company's service territory to share lessons learned and opportunities for energy planning and successes.

This program element will support REV policy goals including the enhancement of customer knowledge and tools and the engagement of customers to advance REV.

## 2. Customer Engagement

As REV develops, customers will have access to new opportunities and tools to better understand and manage their energy usage and bills. Some customers will be making a transition from being passive consumers of energy to active market participants, taking advantage of opportunities to reduce energy consumption, alter when they consume electricity, and in some cases decide to produce a portion of their own electricity. The Energy Smart Community provides a unique opportunity to learn how customers will engage in the new markets, and to understand what messages, services, and programs best meet customers' wants and needs.

The Company will conduct baseline research and will leverage this research to explore ways to most effectively communicate opportunities to customers. The research will identify customer preferences and determine the best methods of reaching and engaging customers with options that hold significant value. Providing customers with greater access to tools and information about the energy system and their interactions with the energy system is a key REV policy objective.

There will be focused customer research to create a better understanding of:

- Baseline levels of customer awareness and interest in DER and potential DER / REV-related programs;
- Factors that motivate energy-related decisions through both quantitative and qualitative research;
- Messages, tools, and techniques that are most effective in engaging customers;
- Segmentation of energy consumers in light of REV;
- Identification of relevant products and services based on customer wants and needs; and
- Identification of new business models necessary to deliver these new products and services.

Creation of targeted engagement plans based on research results to:

- Identify and target programs, products and services to specific customer segments; and
- Identify messaging and delivery mechanisms.

Ongoing measurement and verification of:

- Ongoing analytics of customer segments;
- Awareness of programs;
- Motivation factors; and
- Analysis of participation.

### 3. Online Portal

The objective of the Online Portal program element is to build an online tool where customers can receive individualized content to increase awareness of energy usage and to promote ways of reducing energy consumption. The Company will develop a Customer Communications Platform to share personalized usage information and actions customers can take to more effectively manage their bill. The communications platform and personalized messaging will evolve as more detailed usage information becomes available with AMI meter information.

The online portal will support increased customer awareness of energy usage and content; portal will be updated with interval usage information to provide increased understanding of energy usage; leverage customer usage data to drive recommendations/ preferences. Development of an online portal for information relevant to customers will support REV policy goals including the enhancement of customer knowledge and tools needed to manage energy system use.

#### **Market Operations Focused on Third-Party Market Development:**

Additional market-oriented program elements will focus on entities that choose to offer value-added services and products to customers. These program elements will validate the

DSP's ability to work with market participants to enable the market and to identify potential opportunities for new revenue streams for the Company.

## 1. Joint Partnership Development

The Company will develop an approach and associated processes for attracting, assessing, and implementing joint partnership opportunities with third parties. These partnerships will leverage customer knowledge and data to spur product offerings from innovative vendors. In developing partnership arrangements, the Company will:

- Work with community and market partners to develop proposed or new program elements in line with the Energy Smart Community phased timeline;
- Assess the effectiveness of innovative business models;
- Develop strategic contractual agreements to support innovation;
- Identify revenue and revenue-sharing opportunities for the Company based on the shared value that each party contributes to the agreement;
- Develop internal processes to support strategic vendor management processes; and
- Identify opportunities to expand partnerships beyond the Energy Smart Community.

The program elements described below represent initial concepts for market development that the Company would assess and pursue, as appropriate, through the Energy Smart Community. The form and detail of these concepts will be refined as a natural step in partnership development.

## 2. Electric Vehicle ("EV") Charging Stations

The Company will support the existing planned EV initiatives within the community and the university to increase EV penetration levels.

In this program element, the Communities, Cornell and the Company will partner to identify opportunities for increasing the availability of EV charging stations. In order for the deployment to be effective, the Company will work with the community and Cornell to consider the following planning tasks:

- Identification of the best location for public EV Charging Stations;
- Identification of ownership and payment structure;
- Installation;
- Promotion; and
- Monitor for charging behavior and timing.

The data obtained during the initiative will be used to better understand whether large-scale deployment of EV Charging Stations can contribute to system-wide efficiency.

### 3. Remote Building Audits

This program element will leverage existing community and university initiatives for energy audits. The remote audits will leverage the Company's existing system data as well as increased levels of interval usage information gained from AMI technology.

The Company would also support interested service providers and the community to assess opportunities to provide innovative capabilities in the area of building-scale energy efficiency programs. There is a growing marketplace of firms that have developed novel approaches to enhance the energy profile of large commercial spaces, corporate campuses, and other buildings.

### 4. Targeted Solar

There is a robust market for distributed solar PV installations. The Company anticipates that there will be considerable interest among third parties in working with the Company to identify targeted geographies and customer profiles best suited for solar PV opportunities. The Company will support community and/or developer market-based solar initiatives.

Targeted Solar initiatives offer potential benefits to consumers in the form of lower energy bills and the moderation of peak energy demands. Solar installations may also support the distribution system by addressing system constraints in specific locations.

While the Company will support market partners interested in exploring Targeted Solar opportunities, it will ensure that customer privacy is protected. The Company will not share customer information unless explicitly authorized to do so by individual customers.

### 5. Behavior-Based Demand Response

The Company will seek to engage market providers interested in the implementation of Behavior-Based Demand Response programs. These vendors will design, implement, and measure reduced energy demand at peak times through behavior-based messaging. These Behavior-Based Demand Response programs could target customers based on usage information and historical engagement levels. They could also leverage the more granular information available from AMI technology for more targeted customer selection and customized messaging for more significant results.

### 6. Solar Aggregation

The Company will engage an interested market participant to market solar PV to a specific geographic customer base, procuring the solar installations as a large package. This aggregation could potentially reduce the cost of installation for each individual customer. The complete solar PV bid package could also be combined for a single bid for NYSun funding, and could be qualified to receive Green Bank funding on a consolidated basis. When rolled out to scale, the targeted geographic locations could

be selected based on the areas that would provide the greatest benefit to the distribution system.

#### **7. Bundled Energy Efficiency**

The Company will seek to engage a market partner to identify and market a package of cost-effective energy efficiency products (i.e., LEDs, Smart Power Strips, etc.). The program could potentially offer alternative financing with charges equivalent to the expected usage reduction of the efficiency investments for a net zero bill impact. This bundled efficiency program could support the transition of a subsidized energy efficiency program to a market-based program.

#### **8. Marketplace for Products and Services**

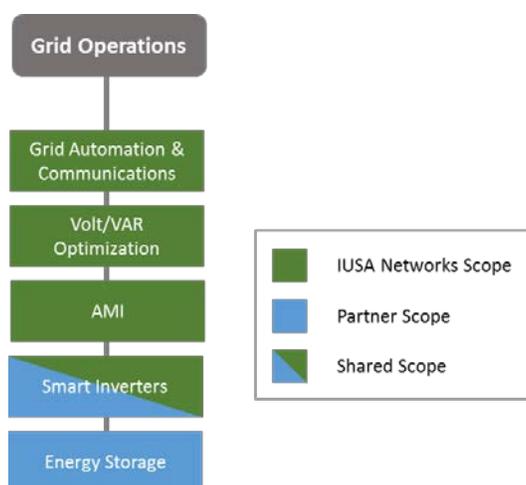
An interested market participant may implement an integrated online marketplace to connect customers with third-party product and service vendors based on the needs and opportunities identified within the customer's portal account. The online marketplace for products and services could be integrated with the online customer portal and will connect customers with third-party product and service vendors based on personalized recommendations identified from the customer's portal account. The marketplace could leverage existing community initiatives, promote local services providers as well as bring additional products and services to customers. The marketplace could also provide an opportunity for the Company to generate revenue through revenue sharing with the market partner.

**Grid Operations:**

The DSP must evolve its grid operations capabilities to enable it to maintain a secure and flexible distribution network. As distributed energy resources are introduced to the system, the DSP will need to balance the operation of traditional utility network facilities with DG and other DER. In addition, grid operations must be capable of managing demand-side resources, providing real-time network and load monitoring, fault detection and isolation, automated feeder and line switching, and Volt/VAR optimization.<sup>11</sup>

The Company will develop these and other Grid Operations capabilities through the implementation of its Energy Smart Community program elements. These Grid Operations program elements will include initiatives to be developed by the Company (e.g., AMI, grid automation, and other infrastructure capital projects) and elements that the Company expects will be led by market partners. Grid Operations program elements are depicted in Figure 5 and are described below.

FIGURE 5: Grid Operations Program Elements



**1. Grid Automation and Communications**

The Company will deploy grid automation and communications technologies, systems and processes to support increased monitoring and “control” of the distribution network. These capabilities will improve reliability and resiliency, service quality, system flexibility and operational efficiency. Grid automation encompasses a variety of technologies that enable the network operator to control power quality, reliability, and flow conditions on feeders.

The scope of the grid automation and communications will include:

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<sup>11</sup> REV, Track 1 Order.

- Fully modernizing substation and line sensing / control to the current Company standards;
- Installation of additional equipment to monitor circuit load and voltage in real time;
- Monitor the impact of high penetration of DER;
- Identify and implement system protection to deal with increased DER;
- Identify data points to be able to build ADMS functionality; and
- Installation of SCADA-controlled line reclosers and switches in accordance with current Company standards to increase current levels of grid automation and control.

The investments in technology and processes will provide a number of benefits, including:

- Provide access to system status information more quickly, enhancing the safety and reliability of the distribution system;
- Faster outage assessments lead to greater customer satisfaction; and
- Improve distribution asset health through the use of remote sensors that will allow preemptive maintenance, leading to savings.

## 2. Volt/VAR Optimization

Implementing a Volt/VAR system will leverage the AMI and grid automation infrastructure to demonstrate the value of Volt/VAR optimization. The optimization will improve power quality and demonstrate the functional capabilities and value that Volt/VAR optimization technology provides in helping reduce customer usage, as well as manage demand peaks.

## 3. AMI

The Company is proposing a phased, multi-year rollout of AMI across its service territories with deployment of advanced meters in the Ithaca community as the first phase. The information and capabilities enabled by AMI will be foundational for increased levels of targeted customer engagement and to enable current and future community initiatives. The AMI deployment to support the Energy Smart Community will include approximately 12,000 meters with targeted deployment in the Town of Ithaca and the City of Ithaca.

Benefits of AMI include:

- Provide customers with greater ability to manage their energy use and better control over energy bills;
- Reduce customer confusion about consumption and billing by eliminating estimated bills (greater transparency);
- Improve customers' understanding of their usage patterns;
- Improve responsiveness to customer service requests with remote service orders;

- Enable the use of “smart” devices that can respond to market conditions (and, eventually, price signals);
- Enable third-party provided, value-added services;
- Support Time Varying Rates to spur customer responsiveness to power market conditions through price signals; and
- Support more granular information for improved system engineering and planning processes.

#### 4. Smart Inverters

The proliferation of distributed generation resources requires the added functionality associated with smart inverters, including greater communication capabilities, reactive power support, dynamic VAR injection, and optimized frequency trip points. The smart inverter program element will provide guidance for creating and defining standards for smart inverters across NY.

The Company will solicit interested smart inverter vendors/manufacturers to work with the Company to develop, implement, and demonstrate the enhanced functionality of the smart inverters and to assess the costs and benefits of smart inverters on the distribution grid. With increased levels of DER, the Company will need to manage the effects on the system. Smart Inverters are designed to mitigate these issues, thereby improving system efficiency and reliability.

Working with smart inverter vendor in a contained region will yield insights that will inform the way the Company and other utilities can best deploy similar technology throughout New York.

#### 5. Energy Storage

The Company will select an energy storage vendor/manufacturer to work with the Company to demonstrate the benefits resulting from economic dispatch and enhanced reliability as a result of a smaller sized grid scale storage technology. The primary benefits associated with distribution-level utility scale energy storage are the possible reduction and deferral of infrastructure investments. This would be accomplished primarily through load reduction, enhanced integration of renewable resources, improved grid reliability and stabilization, and other enhanced ancillary values including frequency regulation and voltage support.

The Company, working with the selected energy storage provider, could test and demonstrate the opportunities and value streams for storage in the community area.

## 6. Energy Smart Community Deployment, Communications, and Governance

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### A. Project Deployment Plan

The Company proposes to plan and deploy the Energy Smart Community in four phases, which are illustrated in Figure 6, below. As each phase is concluded, the Company will 1) review Project development and implementation plans and make adjustments to ensure the most effective and efficient delivery of the Project, and 2) summarize applicable lessons learned that can be applied during subsequent portions of the Energy Smart Community implementation, and to full-scale DSP implementation throughout the Company's New York service territories.

Phase 1 is currently underway and is focused on initial planning and schedule development. The Company has started to define the initial scope (i.e., program element development and selection for specific initiatives) and has begun conducting initial stakeholder engagement activities. The Company is establishing Project governance structures and will begin preliminary research to support customer engagement planning. The Company is seeking regulatory support to continue developing the Energy Smart Community Project as part of its rate filings and related REV filings.

Once regulatory support is in place, Phase 2 will entail detailed planning and early actions. The Company has established multiple milestones for Phase 2 that are planned to take place in 2016:

1. Develop more detailed plans for the Energy Smart Community scope;
2. Begin implementing necessary traditional automation investments;<sup>12</sup> and
3. Commence customer, community, and market engagement activities.

Phase 3 is planned to begin in 2017 and focus on the deployment of enabling technologies (e.g., AMI) and market development. In this phase, the Company intends to work in partnership with market participants to validate emerging business models.

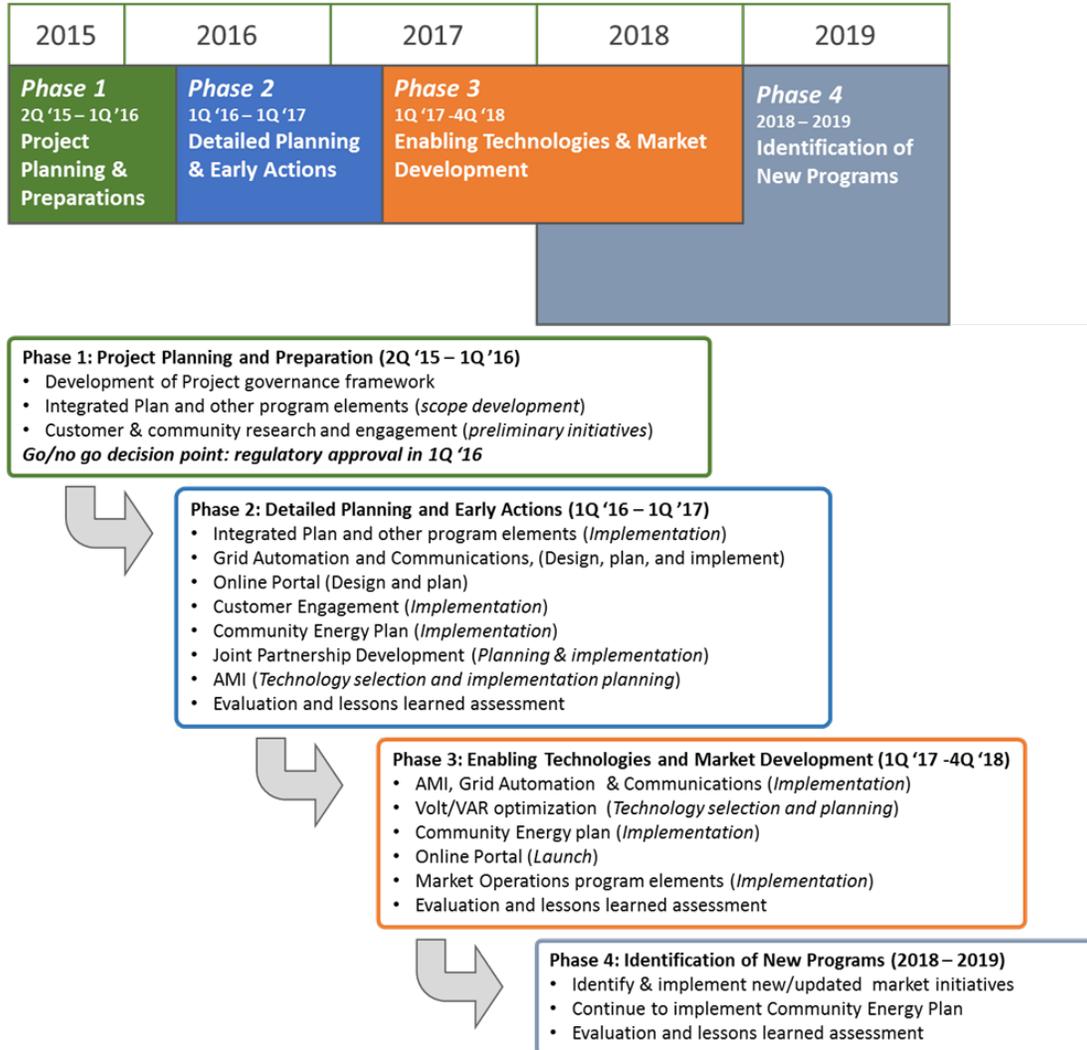
The fourth and culminating phase will begin during Phase 3. Phase 4 activities will draw insights from the data and experience gathered throughout the Project to identify new initiatives or programs that will continue REV learning, leveraging the test-bed environment created through the Energy Smart Community.

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<sup>12</sup> Technology deployment in phase 2 primarily includes grid automation. AMI is planned to be deployed in 2017.

In each phase, the Company will identify lessons learned and refine existing processes and best practices for use within the Project and throughout the Company’s service territories.

FIGURE 6: The Energy Smart Community’s High-Level Deployment Timeline and Sequence of Development



## B. Communications Strategy and Plan

The success of the Energy Smart Community is dependent on the awareness, engagement, and participation of all stakeholders. For customers, enhancing knowledge of tools that support efficient management of energy bills will require thoughtful, thorough, and relevant communication that allow customers to make informed decisions about how and when they consume and produce energy. The Company believes it is a key role of the DSP to make a connection between the different aspects of the energy system in a way that will be meaningful for customers.

At the same time, animating a market that leverages ratepayer contributions will require significant initial communication with both community and market stakeholders. Collaboration will be key in order to identify and implement opportunities to test market animation and new business models. For example, a community-based Integrated Plan development process will leverage existing community plans and will require complete understanding and acceptance by those that are affected by the process. It is imperative that market participants be made aware of opportunities for market-based solutions that become available.

The Company will develop a comprehensive Communications Plan using experience that has been gained from similar projects and full-scale deployments such as Central Maine Power's AMI project. A variety of channels has been identified that will be used to engage each set of stakeholders, and to promote active engagement in the development of the specific program elements that the Energy Smart Community will support.

### **C. Project Governance and Management Strategy**

A robust governance model is a fundamental requirement for successful mobilization and execution of the Energy Smart Community. Effective governance will provide the framework for the successful integration of interdependent demonstration projects and processes. There are two essential components of the governance structure for the Energy Smart Community. First, the Project governance structure must address processes and practices that pertain to the Project and its interaction with other corporate elements. Second, the Project governance structure must address the roles of external stakeholders.

The Energy Smart Community's strategic direction will be reviewed by an Executive Steering Committee comprised of senior executives. A Project Lead will have accountability for integrating program elements, vendor management, and change control as well as conducting regular meetings with team leads, with the Executive Steering Committee and with external stakeholders. As part of the detailed planning phase of the Project (Phase 2), the Company will establish a robust and formal internal governance structure to address:

- Executive visibility into and control over program evolution and outcomes;
- Creation of an External Stakeholder Advisory Committee, which will include community and university stakeholders, the Project Lead, and other interested stakeholders;
- The delineation of roles for the Program Leadership Team, the Program Sponsors, the Executive Steering committee, and the External Stakeholder Advisory Committee;
- Clear and well-understood responsibility and decision-making authority for all Project teams;
- Effective oversight of (and insight into) program progress and direction, including the capability to identify and execute necessary adjustments in the face of internal and external events and changes;

- Appropriate processes and turn-around time for decision making, so that the program schedule and deliverables remain on track;
- Effective identification and communication of program element-level risks and issues, and development of related mitigation strategies and/or action plans; and
- Consistent line of sight into Energy Smart Community Project controls and documentation.

As is the case with many of the Company's capital programs, project management will develop through weekly Project team meetings, in which metrics will be reviewed and strategies developed to address problems that arise. These meetings will likely include key project leads and market partners.

The governance plan will include the framework for key program management areas including escalation governance and process, change management, vendor management, and risk management.

## 7. Energy Smart Community Funding

The Company's budget for development of the Energy Smart Community Project program elements is approximately \$15.5 million. As described in the Company's 2015 rate case filings, this cost will be incurred over a period of approximately 4 years.<sup>13</sup>

Detailed cost estimates have been developed for each program element for which the Companies currently plan to make significant investments, and are illustrated in Figure 7. While the scope of certain elements within the Project may be refined or re-prioritized, the work will be completed within the Project's budget unless significant additional investments become necessary, in which case the Company may consult with the Commission.<sup>14</sup>

FIGURE 7: The Energy Smart Community budget is composed of program elements that will be completed by the Company without capital contributions from community or market partners.

Budget Plan (\$000)	
<b>Integrated System Planning</b>	\$ 1,142
<b>Grid Automation and Communications</b>	\$ 8,066
<b>Volt / VAR Optimization</b>	\$ 1,495
<b>Customer Engagement Research</b>	\$ 2,377
<b>Customer Communications Platform</b>	\$ 1,446
<b>Online Portal</b>	\$ 569
<b>Joint Partnership Development</b>	\$ 400
<b>Total</b>	<b>\$ 15,496</b>

While the Company will collaborate with and support market-based program elements, these components of the Energy Smart Community will be funded by market participants. To the degree that the providers of products and services for these program elements do not materialize or require a utility investment, the Company will need to assess whether benefits warrant utility investment on behalf of its customers. In such an instance, the Company would consult with the DPS Staff and Commission to determine that it has appropriate authorization to incur such costs and recover them from customers through an approved mechanism.

NYSEG plans to capitalize the majority of the costs associated with the Energy Smart Community, as the Ithaca community is part of the NYSEG service territory. The Company proposes to use \$5.0 million of previously uncollected and reserved economic development

<sup>13</sup> The Company expects costs of \$6.0 million in 2016, \$5.5 million in 2017, and \$4.0 million after 2017.

<sup>14</sup> Funding for advanced metering will be included in the Company's AMI filing.

funds in the following manner: \$2.7 million to cover operating expenses; and \$2.3 million to cover a portion of capital investments. Remaining costs will be charged to capital. If the Commission does not authorize the utilization of the Economic Development funds, NYSEG will pursue other options for relatively contemporaneous cost recovery. Finally, as directed by the Commission, the Company will track and report its expenses and cost recoveries related to the Energy Smart Community Project.