What is the Energy Smart Community?
What is the ESC?

Pilot program sponsored by NYSEG and AVANGRID as a response to REV (Reforming the Energy Vision)

April 2014 – Governor Cuomo issued a press release announcing a “Fundamental shift in utility regulation” that will transform NY’s electric industry.

By 2030:
• 40% reduction in greenhouse gas emissions from 1990 levels
• 50% of electricity must come from renewable sources

Ambitious in terms of breadth and speed!
Why Tompkins County?

1. TC residents are more engaged in energy issues than other NYSEG customers
2. Tompkins County Energy Roadmap
   1. 80% reduction in GHG emissions from 2008 by 2050
3. Tompkins County Green Building Policy
4. Numerous organizations involved in changing the energy landscape:
   1. Cornell Cooperative Ext. of Tompkins County Energy Group
   2. GetYourGreenback
   3. Fossil Free Tompkins
   4. HeatSmart Tompkins
   5. Sustainable Tompkins/Green Resource Hub
   6. EV Tompkins
Energy Smart Community (ESC)

A launch pad for the next generation utility

Foundational investments in people, processes, and technology....

....working with a world class research institution...

....within a very active community with strong energy and sustainability goals....

....coming together within the policy context of NY’s Reforming the Energy Vision.

Reforming the Energy Vision

www.nyseg.com
NYSEG/AVANGRID’s Goal w/the ESC

Develop and test the technologies, markets and choices that will advance AVANGRID’s own and NY State’s clean energy goals before rolling them out across all of NYSEG’s service territory.

Comprised of 2 major elements:

• **Grid upgrades** (4 Substations, 15 Circuits)
  • Automate substation and circuits – telecommunications system
  • Deploy advanced grid management system
  • Implement advanced planning systems and publish “hosting capacity”
  • Install smart meters (12,400 electric, 7,300 gas)

• **Customer Engagement**
  • NYSEG Smart Solutions (online marketplace w/solar options + EE products/services)
  • Energy Manager (online customer portal to monitor/manage energy use)
  • Energy Track Report (quarterly energy usage report emailed/mailed)
  • Smart Usage Plan (time-of-use rate plan)
  • Smart Home Rate (electric vehicle discount rate plan)
Need to Modernize the GRID

Why? To make it more resilient, reduce operational costs, and increase efficiency (empower capabilities foundational to making progress on climate such as increase renewables).

• Presently, the flow of power on the grid is one-way.

• In order to allow more renewable energy onto the grid, it must become two-way.
Traditional Electrical Grid

One-way flow of electricity from generation to transmission, distribution, and end use.

Generation

Transmission (high voltage)

Distribution (medium voltage)

Home  Business  Factory  School
An integrated grid
Where electricity can
Travel in both directions

Changing Landscape

Generation

Transmission

Two Way Power

Combined Heat & Power

Rooftop Solar

Electric Vehicles

Energy storage

Demand Response

School

Energy storage

Cornell Cooperative Extension
Tompkins County
Began w/the installation of Smart Meters w/in Tompkins County

1. 12,339 electric w/163 opt-outs (1.3% opt-out rate) 103 remaining
2. 7,615 gas meters w/108 opt-outs (1.4% opt-out rate) 9 left
Tompkins County Energy Smart Community “footprint”
What does a Smart Meter enable?

Customer Choice
- Increased ability to manage energy use
- Participation in innovative rate options
- Access to NYSEG Smart Solutions products & services
- Ability to reduce CO2 footprint

Grid Automation
- Accommodates & manages clean energy resources
- Improves outage response
- Improves system resiliency and efficiency
- Improves planning for the future
Start and Stop your Utility connection

No more estimated reads

Log in to view hourly electricity use

Less outages

Help renewables connect to the grid

“Smart Use” rates
ESC Timeline of program launches

• NYSEG Smart Solutions Launch  
  Oct 2, 2017

• Feb 2, 2018  
  Energy Manager Phase 1

• Energy Track (Innovative Usage Report)  
  Early May 2018

• Early April 2018  
  Energy Manager Phase 2

• Smart Usage Plan (TOU Rate Plan) available  
  May 14, 2018

• Q4 2018  
  Electric Vehicle Pricing Demo project launch
YES Home Solutions Pilot Project Completed 10/1/17: Platform for connecting customers with service providers

Final Program Stats

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Leads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home assessment</td>
<td>258</td>
</tr>
<tr>
<td>Community solar</td>
<td>114</td>
</tr>
<tr>
<td>Residential solar</td>
<td>171</td>
</tr>
<tr>
<td><strong>Total leads</strong></td>
<td><strong>543</strong></td>
</tr>
</tbody>
</table>

Contractor Experience

- Unique market; more valuable elsewhere
- Want to see program at scale
- Disappointment in solar conversion rates

NYSEG Experience

- Scaled program needs increased measurement, monitoring, quality control
- Increased data management and data functionality

Customer Experience

- Customer feedback presently being collected
NYSEG Smart Solutions – Launch

NYSEG Smart Solutions launched 10/2/2017

- Expanded YES Home Solutions marketplace
- Now includes products + services
- New look; NYSEG Branded; open to everyone in Tompkins County
- www.NYSEGSmartSolutions.com
Products

➢ Tompkins County customers can receive instant rebates on:
  • LED’s
  • Advanced Power Strips
  • Smart Thermostats
    • Rebate + Demand Response Enrollment
  • Electric Vehicle (EV) chargers

➢ Also available:
  • Water saving devices
    • (faucet aerators / showerheads)
  • Connected Home Products
    • (security cameras, door locks, i-plugs; Wi-Fi devices)
Products: 2018 & 2017

### August Totals

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Quantity Purchased</th>
<th>Sales ($)</th>
<th>EE rebates ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td>37</td>
<td>999</td>
<td>630</td>
</tr>
<tr>
<td>Advanced Power Strip</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Smart Thermostat</td>
<td>6</td>
<td>1,334</td>
<td>150</td>
</tr>
<tr>
<td>Grand Total</td>
<td>43</td>
<td>2,333</td>
<td>780</td>
</tr>
</tbody>
</table>

### Program Totals

- **Total products sold**: 1,271
- **Total EE products sold**: 1,155
- **Total EE Rebates**: $22,749
- **MWh saved**: 43.71

### Services

<table>
<thead>
<tr>
<th>Service Type</th>
<th># Leads August</th>
<th>Total NSS Leads (by August 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Energy Efficiency</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>Community Solar</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>Residential Solar</td>
<td>54</td>
<td>53</td>
</tr>
</tbody>
</table>

### Demand Response

<table>
<thead>
<tr>
<th>Enrollees August</th>
<th>Total NSS Enrollment (by August 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>92</td>
</tr>
</tbody>
</table>
NYSEG Smart Solutions, Launched October 2nd via NYSEGSmartSolutions.com

Energy Smart Community Program Stats since October 2nd

<table>
<thead>
<tr>
<th>Product Type</th>
<th>Quantity Purchased</th>
<th>Unique Purchases</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td>65</td>
<td>45</td>
</tr>
<tr>
<td>Advanced Power Strip</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Smart Thermostat</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Connected Home Product</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Grand Total</td>
<td>102</td>
<td>75</td>
</tr>
</tbody>
</table>
Energy Manager is LIVE (since Feb. 2) & is being used by ~ 1,000 customers

- Offers customers online access to usage data (hourly, uploaded 4 times per day)
- Provides energy usage information in an actionable format
- Enables customers to download their data (share their data with third party provider (Not yet available.)

![Energy Manager Dashboard](image-url)
Energy Manager

- Encourages customers to complete a Savings Plan to reduce energy use
- Helps determine what rate plan is right for the customer and their lifestyle
- Allows customers to sign-up for the Smart Usage Plan (TOU rate plan)
Reduce Carbon Footprint
Save Money

My Savings Plan

My Goal: Save Money

YOU HAVE SAVINGS OPPORTUNITIES

Net Product Savings Over 7 Years $0

Accuracy: 76%
Energy Manager: Phase 1 vs Phase 2

Phase 1: December 15, 2017

- Hourly AMI Data
  - 3-4 months based on date of meter installation
- Access to historical 12 months of usage data
- Compare usage by day, week, month
- Disaggregation of consumption
  - Appliances, lighting, heating, laundry, consumer electronics
- Hourly gas usage
  - For customers with smart gas meter
- Energy Efficiency Tools & Tips
  - Direct Links to [www.NYSEGSmartSolutions.com](http://www.NYSEGSmartSolutions.com)
- My Savings Plan
- Green Button Download My Data / Connect My Data
- Self Home-Energy Audit

Phase 2: March 1, 2018

- Innovative Usage Report – Energy Track Report (mail & email)
- Information on TOU Rate (Smart Usage Plan)
- What-If Scenarios for Rate Analysis
  - Identify structural winners, behavior changes, enabling technologies, DR Programs, etc.
- Alerts
  - Usage, bill, day ahead supply price
- TOU Rate Enrollment
- TOU Rate Adjustment Calculation on bill
Smart Usage Plan (SUP)

Introduced May 14

- Smart Usage Plan Information
- Emails out 5/31 & 6/15/18
- Letters out when 5/30/18, rec’d. week of 6/11/18
- Smart Usage Plan Enrollment
  - $25 incentive (either gift card or donation to the Food Bank of the Southern Tier)
- What-If Scenarios for Rate Analysis
  - Identify rate structural winners,
  - Test effects of: behavior changes, enabling technologies, DR Programs, etc.
- TOU Rate Adjustment Calculation on bill
- Only 180 as of 9.14.18

Need to find out why so few have opted-into SUP

- Focus Groups held on June 19 & June 21 w/AMI customers who are eligible for the Smart Usage Plan
- Determine knowledge of the ESC, Energy Manager, and Smart Usage Plan
- Rxns to the Smart Usage Plan
- Evaluate the communications campaign
Continued ESC Customer Engagement

Additional projects in development/under consideration:

- **NYSEG /AVANGRID Electric Vehicle (EV) Program**
  - Fast charging stations throughout Tompkins County
  - EV Smart Home Rate (NYSEG controls the charging)

- **Battery Storage Project(s)**

- **Heat Pump Program(s)**
  - Maplewood

- **Low & Moderate Income targeted programs - EE**
  - NYSEG Smart Partner Program (Energy Navigators)
  - PowerHouse
  - Smart Thermostat Program (ex. Habitat for Humanity)

- **Smart Cities Collaboration Innovation Forum**
  - Shared data/shared services
Continued ESC Customer Engagement

• Potential energy literacy initiatives under discussion
  – Ithaca City School District
  – Collaborative Brainstorm

• Potential Community Involvement/Outreach
  – Municipalities
  – Businesses
  – Neighborhood Associations
  – Large employers/organizations
  – Landlords/tenants Association(s)
  – Faith-based community
  – Ongoing community events
    • Ithaca Festival
    • Streets Alive
    • Grassroots Festival
    • Apple Harvest Festival
    • EV Drive Events
    • Local Town/Village Celebrations
ESC CCE-TC Activities at Events and Festivals

Model Grid Kit

Energy Bike
Energy Smart Community

Q & A

NYSEG
UPSTATE ENERGY
(Zones A-E)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>2016 Production</th>
<th>GWh</th>
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<tbody>
<tr>
<td>Gas</td>
<td>5,145</td>
<td></td>
</tr>
<tr>
<td>Oil</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Dual Fuel (Gas/Oil)</td>
<td>1,343</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>1,493</td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>26,511</td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td>24,577</td>
<td></td>
</tr>
<tr>
<td>Hydro PS</td>
<td>464</td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td>3,943</td>
<td></td>
</tr>
<tr>
<td>Other Renewables</td>
<td>1,361</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>64,855</strong></td>
<td></td>
</tr>
</tbody>
</table>
**ESC – Customer & Market**

**CUSTOMER SEGMENTATION & ANALYTICS**
- Tompkins County Segment Profiles
- Continued market research will be used to measure progress from a customer’s perspective and test our platform strategy.
- Measure how customers are engaged in order to strengthen & enhance the relationship.
- Better understand customer’s attitudes regarding NYSEG and energy.
- Measure and enhance value to customers.

**ENERGY MANAGER**
- Demonstrate the value of AMI data for customers.
- Increase awareness and engagement.

**SMART USAGE PLAN**
- Introduce time of use price signals to support system efficiency.
- Provide bundled rates and demand response programs to increase opt-in and optimization of rate.

**NYSEG SMART SOLUTIONS**
- Drive value of AMI data and increase DER adoption.
- Enhance the development of trust with our customers.
- Generate revenue through net margin on sales.
**Goal:** Assist low to moderate income (LMI) customers within the NYSEG Tompkins County service territory:
- understand how their households use energy
- demonstrate/explain the best ways to decrease their energy use and provide the tools to do so.

**Vehicle:** Through trained Energy Navigator(s) from their peer group in collaboration with Get Your Green Back (getyourgreenback.org)

**Scalability:** NYSEG hopes to learn how to connect with and influence the behavior of LMI customers and create value by reducing LMI customers’ energy burden, acknowledging that increased energy efficiency in one population benefits all ratepayers.

**Schedule:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 18, 2018</td>
<td>Training Begins (over 10 weeks)</td>
</tr>
<tr>
<td>May/June 2018</td>
<td>Targeted Marketing begins</td>
</tr>
<tr>
<td>June-Dec. 2018</td>
<td>Energy Navigators are available to the community</td>
</tr>
<tr>
<td>Q1 2019</td>
<td>End of program; Reporting; Evaluate Scalability</td>
</tr>
</tbody>
</table>
Other EE LMI Initiatives

**Free LUX Smart Thermostats:**
- First installation, Habitat for Humanity duplex on 3rd Street (w/smart meters)
  - Help owners access, monitor and control their energy usage using Energy Manager
- Evaluating other opportunities w/LMI customers
  - Case study w/CCE-TC

**Free LED Lightbulbs:** given away at events & presentations (sample)
PowerHouse (in conjunction w/Energy Navigators & Get Your GreenBack)

- mobile, attractive, high-performance Tiny Home with hands-on, interactive exhibits on:
  - energy efficiency
  - heating
  - Lighting
  - Solar
  - smart meters and
  - other green and “smart” technologies.

- will help visitors better understand
  - how these technologies work,
  - estimate potential savings from adopting them, and
  - learn about next steps they can take if interested for their homes.

- Will allow Get Your GreenBack to reach thousands of people from diverse audiences throughout Tompkins County and the Southern Tier region.
What does a Smart Meter enable?

Grid Automation
• Accommodate & manage clean energy resources
• Improve outage response
• Improve system efficiency
• Improve planning for the future

Customer Choice
• Increase ability to manage energy use
• Participate in innovative rate options
• Access YES Home Solutions services & products
• Reduce carbon footprint
Customer Data Security

Smart meters, the communications network, and software that store energy use information, use advanced security measures to prevent unauthorized access to customer data.

No customer identifying information (name, address, phone number, etc.) is stored in the smart meter or transmitted across the network.

What will NYSEG do with my smart meter data?

- Billing
- Available for your review and use via Energy Manager
- NYSEG does not sell customer data
- Not used to monitor customer behavior
- Protect the confidentiality of you account information
Data Security and Privacy

1. **Information /Data Asset Classification Rule** identifies a set of controls to be used to develop a framework and plan to classify information/assets based on their levels of sensitivity, value and criticality. Classification aids in determining the baseline security controls necessary to protect that information/data and reduce the risk of unauthorized access, disclosure, alteration and destruction.

2. **The Data Asset Classification Matrix Appendix** within the Rule provides descriptions, criteria, information examples, how to mark/label, reproduction, transmission, storage, and destruction and disposal requirements.

3. **Third Party Risk Management Rule** establishes criteria for assessing third parties that are utilized by the organization (service providers, outsourcers, contractors, partners, consultants, etc.) to fulfill both core and non-core functions and services.
   a. **Data Security Rider** applicable to any third party vendor who has access, stores, processes, collects, or transmits non-public data. Cyber-insurance covers a business's cost to respond to, investigate, and limit the damage of a data breach.
   b. **Background Check Rule** establishes the criteria and procedures for background checks on contractors and contractor representatives who are expected to have regular access to company facilities, assets, confidential data, or computer systems.
   c. **Full Third Party Risk Assessment** is a more detailed assessment that is sent to the third party to complete based on the classification level of the data that they will access, store, collect, process and/or transmit.
Electric Meter Box & Safety Tool

Hot Socket tool

Meter Box
Other new infrastructure

Gas meter with electric reader transmitter

Grid Router will be put on poles

Cisco modular 1000 Series Connected Grid Router