Residential Energy Score Project:
A Plan for Advancing Energy Efficiency

This webinar will start shortly.

Office of Climate Change
NYS Department of Environmental Conservation
April 13, 2017
Welcome!

Today’s webinar: *Residential Energy Score Project*

Connect to the audio with your phone:

1) Go to the “*Event Info*” tab for call-in details, and

2) Enter your unique attendee ID when prompted.
Today’s webinar topic:

Residential Energy Score Project

Problems or technical questions?
Use WebEx Chat

Content questions for speakers?
Use WebEx Q&A
Agenda

• Announcements – *Dazzle Ekblad*, DEC

• Residential Energy Score Project
  - *Kevin Rose*, Bldg. Energy Senior Technical Associate at Northeast Energy Efficiency Partnerships (NEEP)
  - *Nick Goldsmith*, Sustainability Coordinator for City of Ithaca and Town of Ithaca

• Q & A – All speakers
Event Announcements

- Apr. 27, **Hudson River on the Rise**, Resiliency Planning, Hyde Park
- May 3, **Changing Energy Landscapes in the Hudson Valley and Watershed**, New Paltz
- May 3, **Preparing for Extreme Weather Events through Land-Use Planning in the Lake Erie/ Niagara River Region**, Cheektowaga
- May 11, CSC Webinar: Lessons from the Five Cities Program
- Oct. 25-26, **Clean Energy Economy Conference**, Glens Falls
DEC Municipal ZEV Rebates

There will be a 2nd round!
(Opening date TDB.)
The 1st round of municipal zero-emission rebates closed on March 31.

Rebates are available to municipalities for:

• **Purchase/lease of eligible clean vehicles** (no match required)
• **Eligible infrastructure projects** for charging/fueling eligible clean vehicles
  - Networked electric vehicle supply equipment (EVSE) or hydrogen fuel cell
  - 20% match requirement
• Offered on the NYS Grants Gateway ([https://grantsgateway.ny.gov](https://grantsgateway.ny.gov))
• Questions? [ZEVrebate@dec.ny.gov](mailto:ZEVrebate@dec.ny.gov)
Save on EVs! - Join the 3rd Aggregate Purchase

- NYS initiative organized by DEC and OGS
- Savings of ~11% via 1st aggregate purchase
- Open to any authorized user of state contracts
- For questions, contact Pamela Hadad-Hurst at pamela.hadadhurst@dec.ny.gov
Get Help from Regional Coordinators

• Clean Energy Community Coordinators provide free consulting services to local governments participating in NYSERDA’s Clean Energy Communities program.
  • Approximately 50 hrs of free, on-demand technical assistance per municipality
  • Includes support for becoming a Certified Climate Smart Community
• Contact the coordinator in your region to get started:
  https://www.nyserda.ny.gov/Contractors/Find-a-Contractor/Clean-Energy-Community-Coordinators

From left, CEC Coordinators for Mohawk Valley (Dan Sullivan), North Country (Jamie Rogers), Capital Region (Robyn Reynolds), and Mid-Hudson (Carla Castillo).
How are the two programs related?

**Climate Smart Communities Certification**
- Comprehensive climate program
- 138 unique actions
- Accumulate points toward certification and improve score on CSC grant applications

**Clean Energy Communities**
- Focused on clean energy
- 10 high-impact actions
  - 1 of the 10 is CSC Certification
  - Complete 4 Actions to be designated and access grant funding

- Earn points toward CSC Certification by doing CEC actions
- Do both!
NY’s Newest Certified CSC

Madison County
New York’s 10th Certified Climate Smart Community
From left: Ken Lynch (DEC Executive Deputy Commissioner), John Becker (Chairman, Madison County Board of Supervisors) and Scott Ingmire (Director, Madison County Planning Dept.)
NY’s Other Certified CSCs

- Ulster County (bronze)
- Village of Dobbs Ferry (bronze)
- City of Kingston (bronze)
- Town of Mamaroneck
- Town of East Hampton
- City of Albany
- City of Watervliet
- Town of Cortlandt
- Orange County

James Clayton, NYSDEC
CSC Certification

- **CSC Certification Workbook**: Excel tool for estimating points for past actions, tracking progress & submitting documentation
  
  - Email [climatechange@dec.ny.gov](mailto:climatechange@dec.ny.gov) for a copy of the CSCC Workbook

- Actions from the [CSC Certification program](#) potentially related to today’s webinar:
  
  - #8.12 - Establish a residential energy efficiency program plan (2 pts.)
  
  - #9.2 - Create an energy reduction campaign or challenge (5 pts.)
  
  - #11.1 - Implement an action using an innovative approach (5 pts.)
Residential Energy Scores & Tompkins County Project

Kevin Rose - NE Energy Efficiency Partnerships
Nick Goldsmith - City of Ithaca and Town of Ithaca
Home Energy Ratings: Primer and Regional Update

NY Climate Smart Communities webinar
April 12, 2017
Northeast Energy Efficiency Partnerships

• Long-term shared goal
  – To assist the Northeast and Mid-Atlantic region in reducing carbon emissions 80% by 2050 (relative to 2001)

• Mission
  – Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

• Vision
  – That the region embraces next generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world

• Approach
  – Overcome barriers and transform markets through Collaboration, Education, and Enterprise
About NEEP
A Regional Energy Efficiency Organization

One of six REEOs funded in-part by U.S. DOE to support state and local efficiency policies and programs.
Making Energy Use **Transparent**

**GOAL:** accelerate the creation of large-scale home energy labeling policies and programs that support the market valuation of energy efficiency in homes.
Q: What is one of the largest energy saving opportunities for any community?

A: Retrofit existing buildings
~1/5 residential

> 98% existing
Q: How can communities overcome the cost gap to tap this large opportunity?

A: Increase market information access
Why Do Homeowners & Buyers Care About Energy Efficiency?

• Helps Reduce Costs
  • **U.S. Census**: On average, energy costs are higher than either property tax or insurance for U.S. homes at $2,506 per year

• Provides Return on Investment
  • **Remodeling Report**: Attic insulation achieves highest return on investment of all home improvement projects studied at 116.9%

• Improves Quality of Life
  • **NARI Report**: Insulation Upgrade yields 61% say greater desire to be home, 95% same or increased sense of enjoyment, and 66% major sense of accomplishment
Studies Nationwide Show Energy Efficient Homes Sell for More, Faster

Certified homes sell for 9.6% more

Certified homes sell for 4.2% more & 18 days faster

Certified homes sell for 2.1 to 5.3% more

PACE homes delivered $199 to $8,882 in savings above cost of improvements

Homes that disclose energy costs sold 20 days faster

Homes designated relatively energy efficient sold for an average $3,416 premium

Homes that use “green” fields consistently perform better on market indicators

ENERGY STAR homes sold at $5,566 premium at $2.99 per ft² more, & 89 days faster

New certified homes sold for 12.9% more, $13.82 per ft² more, & 42 days faster

Houses with one or more green element sell for 5.9% more

Certified homes sold for a higher percentage of their asking price & 31 days faster


*Not all studies shown have been peer reviewed.
Solar, when owned, has been found to increase values consistently.
Q: What is the most appropriate way to provide this information for homes?

A: Asset ratings, AKA “MPGs for homes”
Asset Ratings (vs. Utility Bills)
Q: How do we deliver enough asset ratings to reach a “critical mass”?

A: Large scale programs/policies

GOAL: accelerate the creation of large-scale home energy labeling policies and programs that support the market valuation of energy efficiency in homes.
Program Example

Connecticut: Home Energy Solutions Program

- DOE Home Energy Score included in all Home Performance audits
- 10,000+ scores/year
- Weatherization Mandate 80% by 2020

Are You Eligible for Energize CT Home Energy Rebates?
Find out.

Schedule My Audit
Policy Example
Portland, OR: Home Energy Score Policy

• Requires home energy rating to be procured and shared before sale
• Companion to Commercial efforts
• Climate Action Plan ↓80% by 2050
What About NY?

• NYSERDA interested

• Tompkins County
Residential Energy Score Project:
A Plan for Advancing Energy Efficiency in Tompkins County

NICK GOLDSMITH, SUSTAINABILITY COORDINATOR
CITY OF ITHACA AND TOWN OF ITHACA

CLIMATE SMART COMMUNITIES WEBINAR
APRIL 13, 2017
Agenda

- Introduction
- RESP project overview
- Background research
- Results – key elements of program
- Key issues
- Implementation – next steps locally

- Back to Kevin at NEEP
Introduction
Introduction

- City of Ithaca and Town of Ithaca joined Climate Smart Communities initiative in 2009
- Currently working on CSC certification
### Greenhouse Gas Reduction Targets

<table>
<thead>
<tr>
<th>Location</th>
<th>Reduction Target (%)</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York State</td>
<td>80</td>
<td>2050</td>
</tr>
<tr>
<td>Tompkins County</td>
<td>80</td>
<td>2050</td>
</tr>
<tr>
<td>City of Ithaca</td>
<td>80</td>
<td>2050</td>
</tr>
<tr>
<td>Town of Ithaca Gov't</td>
<td>80</td>
<td>2050</td>
</tr>
<tr>
<td>Ithaca College</td>
<td>100</td>
<td>2050</td>
</tr>
<tr>
<td>Cornell University</td>
<td>100</td>
<td>2035</td>
</tr>
</tbody>
</table>
NYS Reforming the Energy Vision (REV) Initiative

- Aims to transform the electric system to meet 21st century demands
  - For example: increased renewables and improved resilience
- One REV Goal: help consumers make more informed energy choices
RESP Project Overview

- Funded by NYSERDA under Cleaner Greener Communities
- Planning project; ran from fall 2014 to summer 2016
RESP Project Overview

- Funded by NYSERDA under Cleaner Greener Communities
- Planning project; ran from fall 2014 to summer 2016
- Collaboration
  - Town of Ithaca (grant administrator)
  - City of Ithaca, Towns of Caroline, Danby, and Ulysses
  - Cornell Cooperative Extension of Tompkins County
  - Tompkins County Department of Planning and Sustainability
  - Consultants: Performance Systems Development
Enable energy efficiency to be valued in real estate transactions by increasing awareness and understanding of energy use in homes.
RESP Project Overview

• Enable energy efficiency to be valued in real estate transactions by increasing awareness and understanding of energy use in homes
• Two major barriers to energy efficiency in residential real estate
  o Many EE improvements are invisible
  o Lack of a standardized data field to incorporate EE into MLS
• RESP will address both of these barriers
RESP Project Overview

- Two major barriers to energy efficiency in residential real estate
  - Many EE improvements are invisible

Nice countertop

Nice R-50+ Attic Insulation
RESP Project Overview

Wouldn’t it be great to understand a home’s energy efficiency like a car’s miles per gallon?

The Residential Energy Score Project (RESP) Aims to solve this problem in Tompkins County
RESP Project Overview

Wouldn’t it be great to understand a home's energy efficiency like a car’s miles per gallon?

MEASURING A CAR’S EFFICIENCY

VS

MEASURING A HOME’S EFFICIENCY

The Residential Energy Score Project (RESP) Aims to solve this problem in Tompkins County
RESP Project Overview
Background Research

- All project documents available for download at:
  www.town.ithaca.ny.us/resp
Attachment 2: Existing Home Energy Rating and Disclosure Laws, Programs, and Best Practices

- Comparison of programs in various parts of the country and the world

- All project documents available for download at: www.town.ithaca.ny.us/resp
Background Research

• Attachment 1: Legal Issues
  o Not illegal, but potential legal hurdles to mandated program
  o Pushback from public

→ Begin with voluntary program
  o A voluntary option can help build toward and inform a mandate down the road
  o A mandate may not be essential to achieve wide-spread adoption
Background Research

- Attachment 3: Review and Analysis of Preliminary Data
- Studied local data on:
  - Housing stock and development
  - Housing sales
  - Energy audit and retrofit activity
  - Existing energy rating workforce
  - Municipal administrative capacities
Results – Key Elements of Program

1. Rating Performed on Home
2. Label Generated/Discovered
3. Buyers and Renters Fully Informed
4. Market Values Energy Efficiency
5. Owners Invest in Energy Efficiency Upgrades
6. Multiple Benefits

- Utility Costs Reduced
- CO₂ Emissions Reduced
- Green Jobs Increased
Results – Rating System

Creating a Standardized Metric

- We need to be able to talk to each other about home energy use in a way that is:
  - Consistent
  - Meaningful
  - Understandable
  - Comparable
Results – Rating System

- Asset Rating vs. Operational Rating
- Operational rating: based on measured amounts of delivered and exported energy
  - Example: energy bills, NYS Truth in Heating Law
- Asset Rating: Evaluates a home’s physical structure, mechanical systems, major lights and appliances
  - Removes the influence of occupant behavior, fuel price, and weather fluctuations
  - Allows easy comparison of one home to another

→ Used Asset Rating
Results – Rating System

• Chose two asset rating systems
  ○ Nationally recognized
  ○ Industry backed
  ○ Third party certification
  ○ Third party Quality Assurance
## Results – Rating System

<table>
<thead>
<tr>
<th>HERS Index</th>
<th>Home Energy Score (HES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• RESNET - Home Energy Rating System Index</td>
<td>• U.S. Department of Energy</td>
</tr>
<tr>
<td>• More than 1 million ratings since 1995</td>
<td>• 56,000 ratings since 2012</td>
</tr>
<tr>
<td>• Used to qualify homes for ENERGY STAR, LEED, DOE Zero Energy Ready Home</td>
<td>• Used in labeling programs in more than 10 states</td>
</tr>
<tr>
<td>• 2016 NYS Energy Code: Energy Rating Index Compliance Option</td>
<td></td>
</tr>
</tbody>
</table>
### Results – Rating System

<table>
<thead>
<tr>
<th>RESNET HERS</th>
<th>DOE HES</th>
</tr>
</thead>
<tbody>
<tr>
<td>More expensive</td>
<td>COST</td>
</tr>
<tr>
<td>Single- and multi-family</td>
<td>SCOPE</td>
</tr>
<tr>
<td>New construction</td>
<td>PRIMARY MARKET</td>
</tr>
<tr>
<td>Less simple</td>
<td>SCORE COMPLEXITY</td>
</tr>
<tr>
<td>Lower is better</td>
<td>DIRECTION OF SCORE</td>
</tr>
<tr>
<td>High</td>
<td>LEVEL OF DETAIL</td>
</tr>
</tbody>
</table>
Results – Score

- Tompkins Residential Energy Score
  - Ranges from 0 to 200+
  - In units of energy use: Estimated annual MMBTUs of site energy
  - Allows use of both HERS Index and HES
Results – Label
Results – Label
Results – Time of Rating and Disclosure

- A rating can happen at any time
- To maximize the benefit and limit the interruption to occupants, ratings would be encouraged at significant times
Results – Time of Rating and Disclosure

- A rating can happen at any time
- To maximize the benefit and limit the interruption to occupants, ratings would be encouraged at significant times
  - Existing Homes: Energy audit, retrofit, renovation, code inspection, home inspection,* real estate transaction*
  - New Homes: During construction and/or upon completion
Key Issues of Public Concern

Overview of public outreach

- Technical Advisory Committee
- Many stakeholder groups represented
  - Realtors
  - Lending institutions
  - Raters, engineers and other industry experts
  - Builders
  - Providers of efficiency upgrades
  - Advocates for low-income communities
  - Building Science Engineer
  - Former Town Supervisor; Board of Solar Tompkins
  - Utility (NYSEG)
Key Issues of Public Concern

Overview of public outreach

- Extensive outreach to the public and to municipal boards guided the creation of the first draft
  - Thanks to Kevin and others at NEEP, Sam and others at NYSERDA
- The second draft informed by more than 250 comments collected from additional public outreach
- Then presented to the governing boards of the five partner municipalities
- Final changes and clarifications incorporated into the final Tompkins Residential Energy Score Program and Implementation Plan
Key Issues of Public Concern

**Property/sale value**

- Concerns were expressed that a Score may affect the assessed value and/or sale price of a home
  - Implications on property taxes
- Tompkins County Department of Assessment: energy efficiency features historically have **not** affected market value
- Many barriers to overcome before a home energy score could be factored into an assessment
Key Issues of Public Concern

Low-income concerns

• Concerns that low-income homeowners whose homes score poorly, but who cannot afford to do improvements, would not be able to sell their homes

• Response: Attachment 11 - Related Programs and Financing Mechanisms in New York and Tompkins County

• Low- and middle-income home buyers and renters can benefit greatly from improved efficiency
Key Issues of Public Concern

Privacy

- Concerns about how the information collected would be stored and disclosed, and to whom

- Response:
  - Much public info available already, this project will not add significantly to publicly available info
  - Use aggregate data without permission
  - Share specific data only with written authorization from homeowner
Implementation (Local)

- Final program plan endorsed by 5 municipalities
- Now what?
Implementation (Local)

Municipal project → Community Project

- Steering Committee
- Host organization
  - Oversee project
  - Grant administration
  - Program staff
Implementation (Local)

- Phase **One**: Secure funding
- Phase **Two**: Acquire a Program Implementer
- Phase **Three**: Complete the program design
- Phase **Four**: Pilot Program
- Phase **Five**: Voluntary Program
- Phase **Six**: Evaluation of program design (continuous)
Implementation (Local)

• A pilot phase would allow for testing the design and effectiveness of the program on a smaller scale.

• One option for a pilot is to target 25% of all single-family homes in Tompkins County that are built, sold or significantly retrofitted in approximately one year, until 250 homes are rated, scored, and labeled.
During the pilot phase, the following aspects of the program should be evaluated and fine-tuned:

1. Effectiveness and relevancy of the LABEL;
2. Training needs of local workforce on HES and HERS Certification;
3. LABEL generation process;
4. Retrieval and storage of data;
5. Quality Assurance;
6. Potential negative impacts on low income population;
7. Best time/most frequent time that a rating occurs;
8. The ability of the TOMPKINS RESIDENTIAL ENERGY SCORE PROGRAM to influence home improvements, home purchase decisions, and purchase price; and
9. Available funding for home energy retrofit work.
Implementation (State)

NYSERDA
Learn More about RESP and Ithaca

- More RESP information and document downloads available at www.town.ithaca.ny.us/resp

- E-newsletter
  - Sustainability news and events
  - Subscribe at: http://tinyurl.com/IS-subscribe

- Facebook page
  - Like us at: www.facebook.com/IthacaSustainability
Thank You!

Nick Goldsmith
Sustainability Coordinator
Town of Ithaca, NY
City of Ithaca, NY

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Real Estate Industry Response – Education!

Value for Green Homes

1. Green Builder or Contractor and Homeowner
2. Green MLS Listing Agent or Buyers Agent
3. Lender
4. Appraiser
5. Underwriting
6. Fair Value at Closing

Documentation is key:
- Green building certificate
- Performance test results
- Local green disclosure form
- 12 month utility usage

RESO®
REAL ESTATE STANDARDS ORGANIZATION
How does this information get to home buyers / renters?

A: It doesn’t ... yet!
Data Flow – April 2017

Auditor → Owner, DOE → RE Agent → MLS
Data Flow – April 2018 (est.)
Goal: Connect Home Energy Investments to Property Values
Beyond DOE HES

HELIX

U.S. DEPARTMENT OF ENERGY Home Energy Score

BUILDING PERMIT

MULTIPLE LISTING SERVICE

RESNET HERS INDEX

trulia real estate search

RREALTOR.com

Zillow.com

SOLAR HOME FOR SALE
HELIX Project Elements

• Database design and development

• Stakeholder engagement

• Real estate community outreach, training

• Governance, Ownership, and Longevity
Project Timeline

Year 1: Research and Scoping

Year 2: Development and Testing

Year 3: Full Implementation

Today
Home Energy Data? ✓
Accessible? ❌
Real Estate System Standardization? ✓
Autopop-able? ❌
NEEP Resources for Communities

- O&M
- Benchmarking
- Data Access
- NE CHPS (High Performance Schools)
- Zero Energy
- Multifamily
- Streetlighting
- Exemplars
- And more!
Thank you!

- Kevin Rose
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Questions?

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