NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE OF OPPORTUNITY | Climate Smart Communities

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

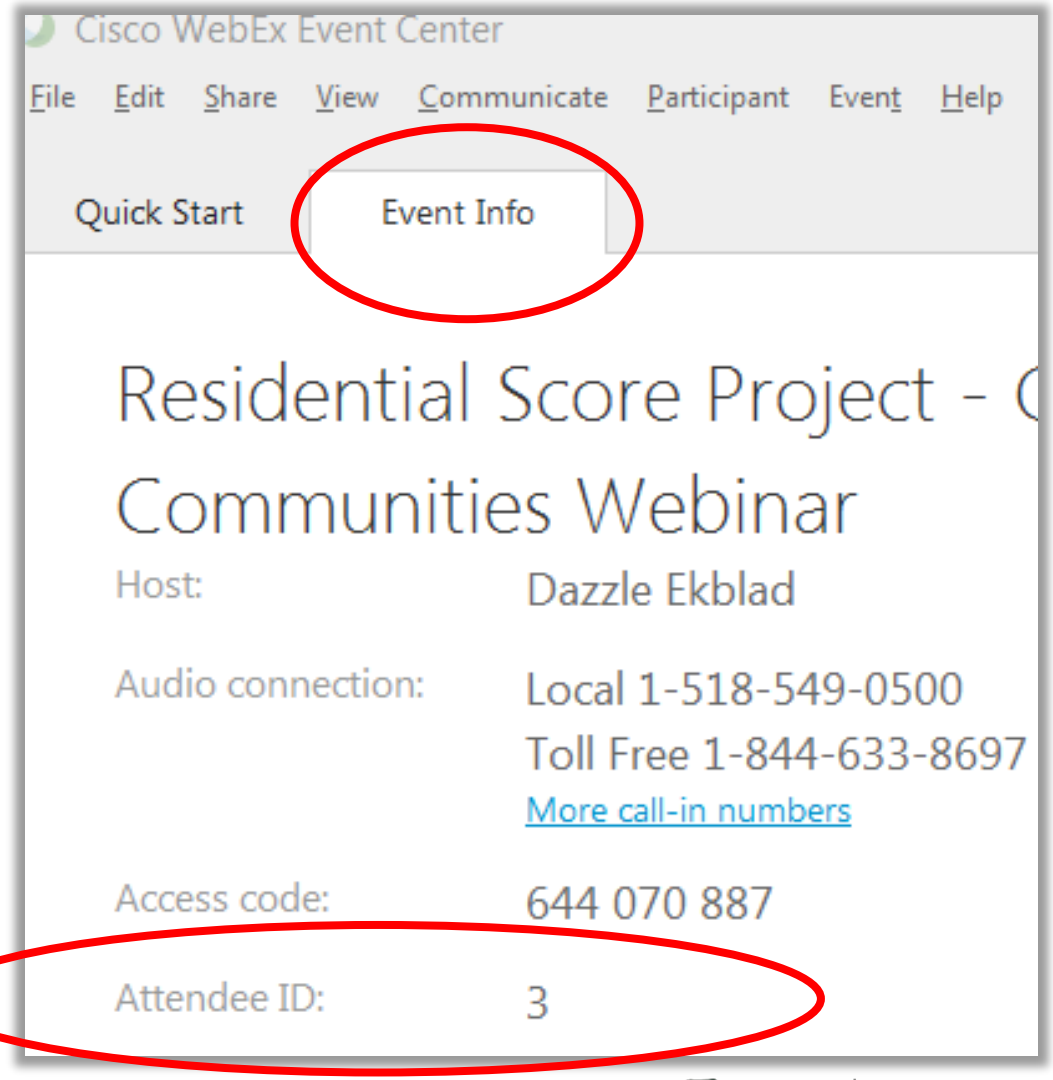
Welcome!

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.



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Today's webinar topic:

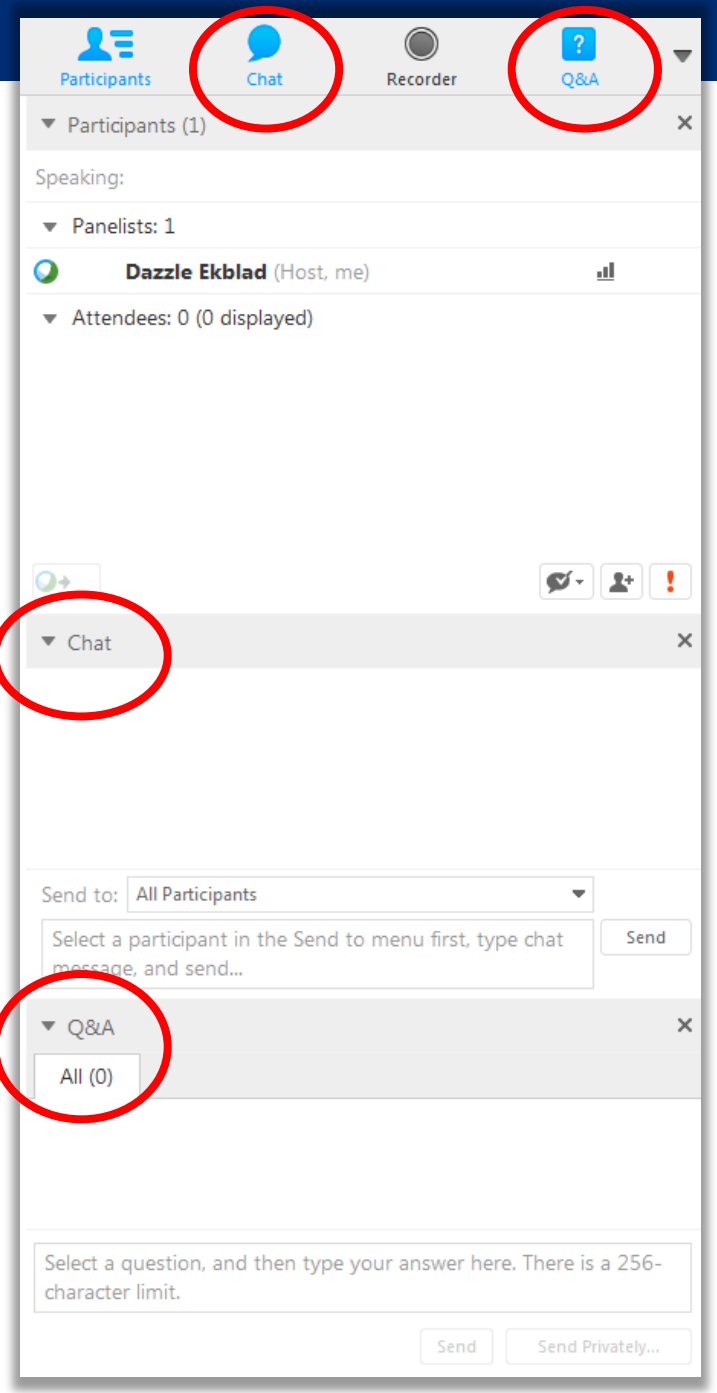
Residential Energy Score Project

Problems or technical questions?

Use WebEx Chat

Content questions for speakers?

Use WebEx Q&A



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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)
- Questions? *ZEVrebate@dec.ny.gov*

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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**

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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).

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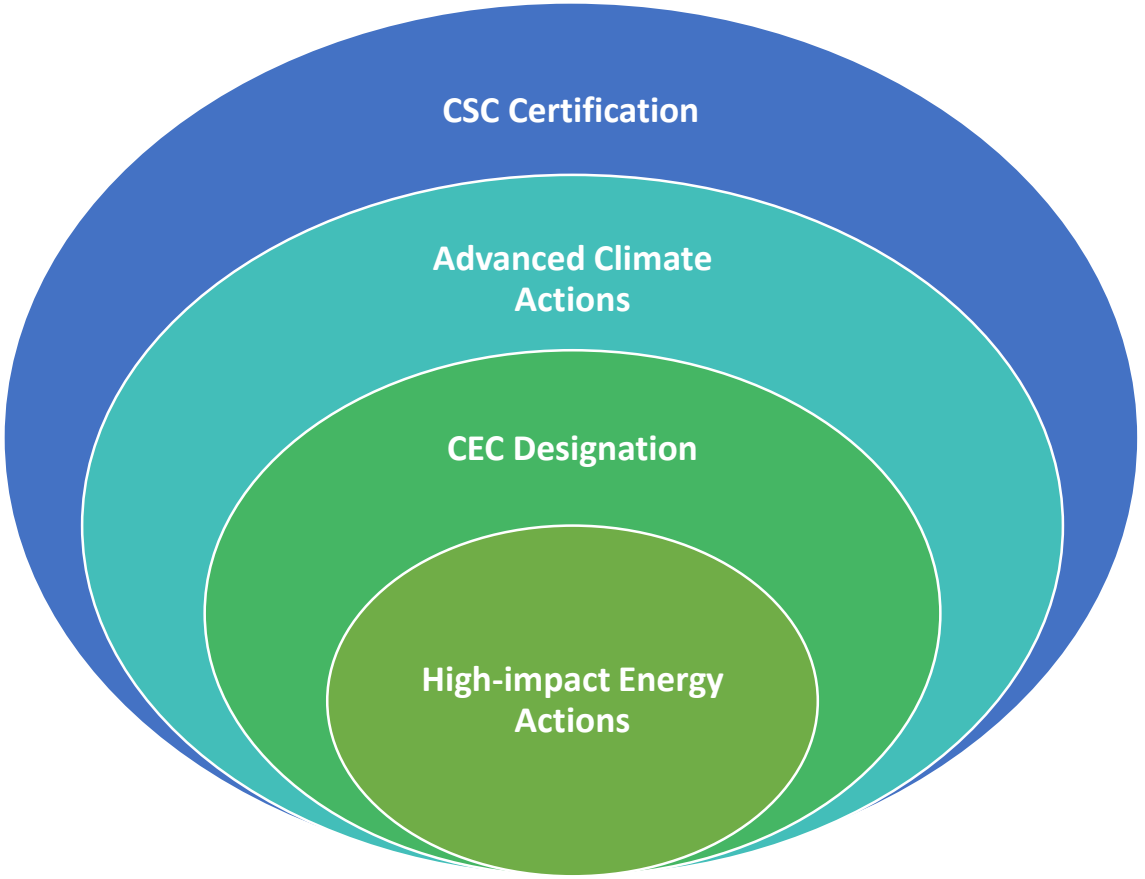
How are the two programs related?

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!**

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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

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CSC Certification

- **CSC Certification Workbook:** Excel tool for estimating points for past actions, tracking progress & submitting documentation
  - Email 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

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NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

Home Energy Ratings: Primer and Regional Update

NY Climate Smart Communities webinar

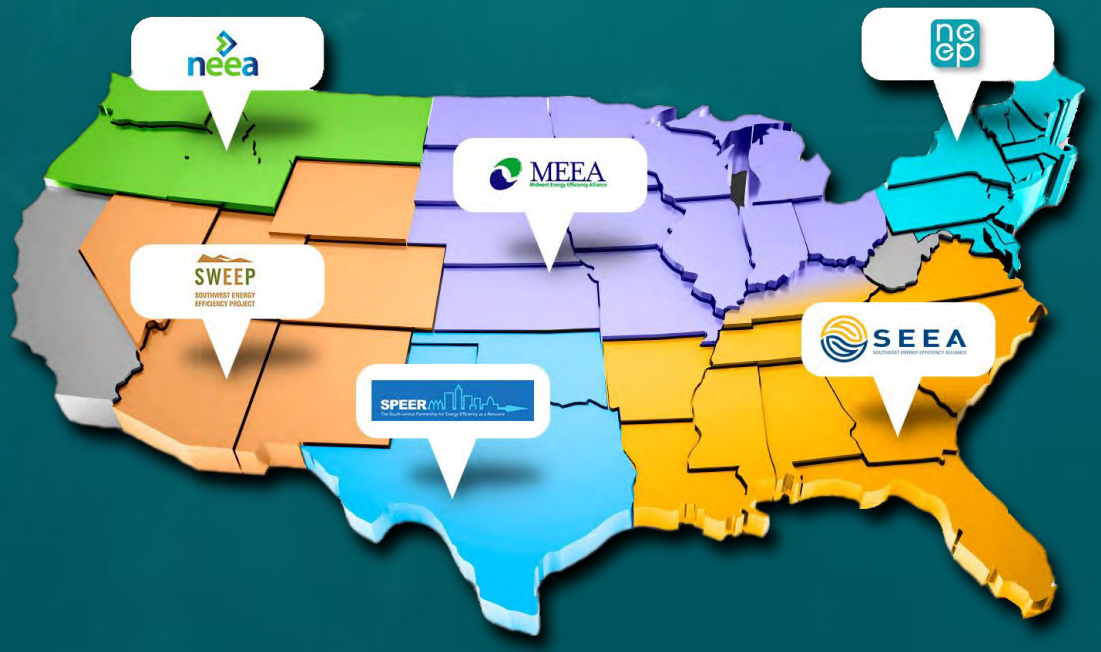
April 12, 2017

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

Q: What is one of the largest energy saving opportunities for any community?

A: Retrofit existing buildings

Total U.S. Energy Use

~1/5 residential

> 98% existing

Q: How can communities overcome the cost gap to tap this large opportunity?

A: Increase market information access

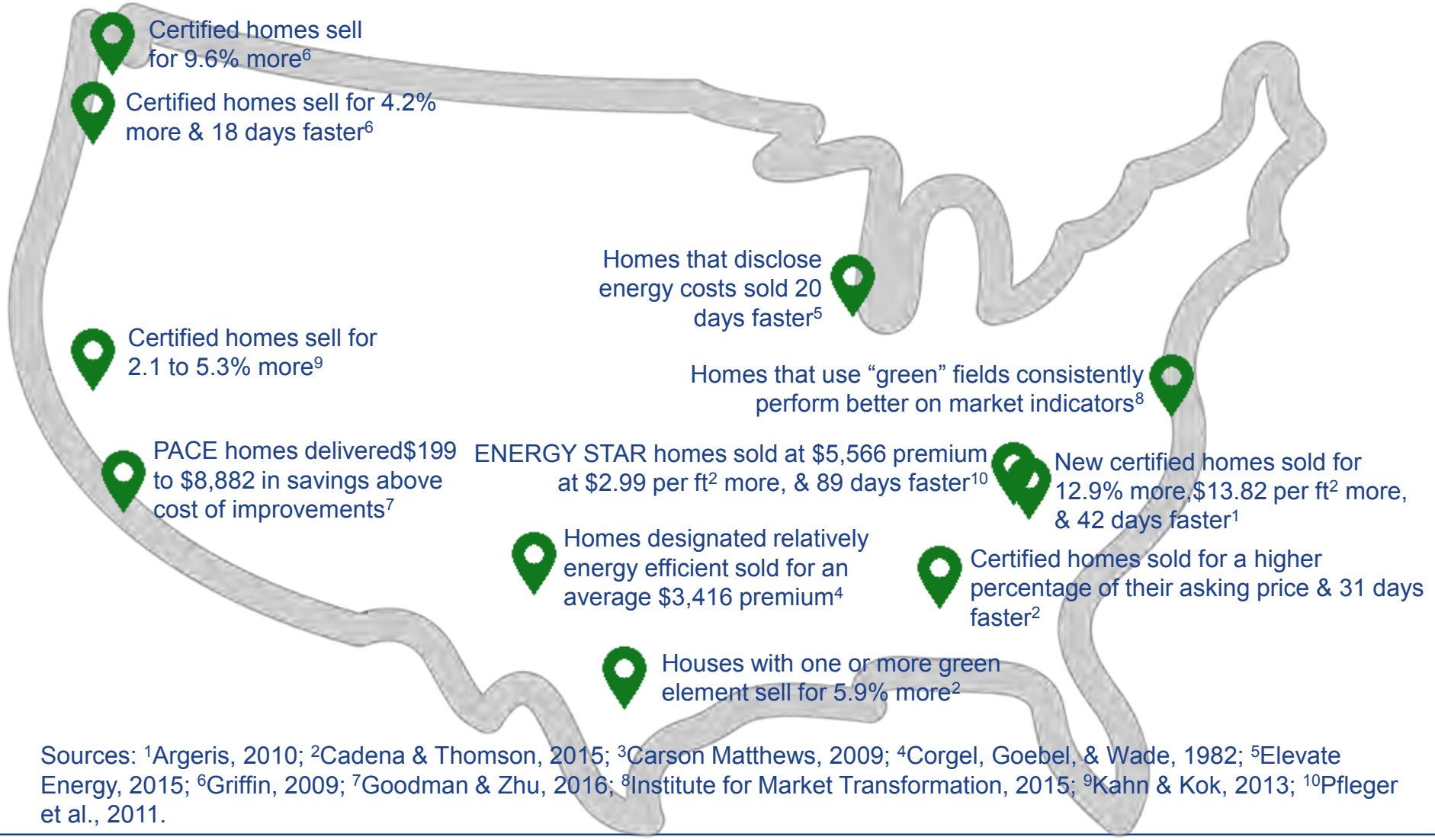
Why Do Homeowners & Buyers Care About Energy Efficiency?

- **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

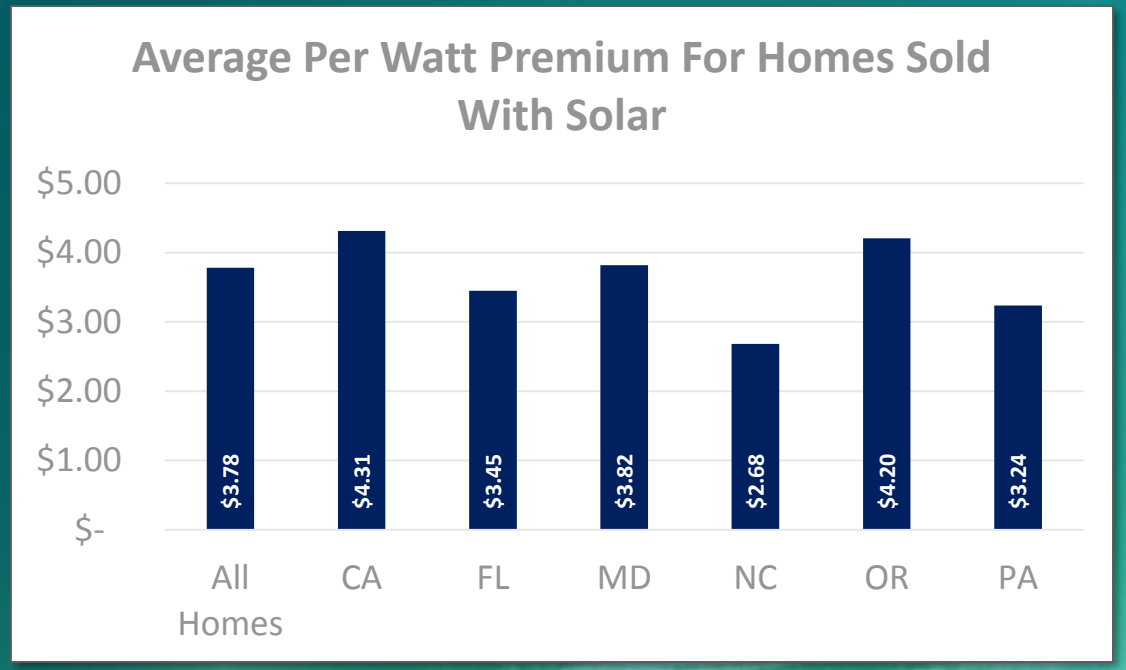
Studies Nationwide Show Energy Efficient Homes Sell for More, Faster

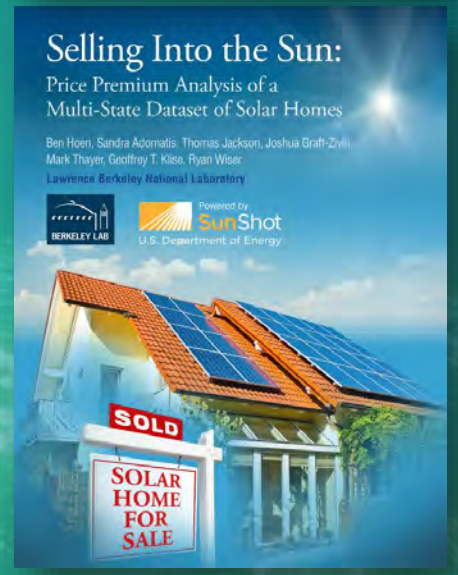


Sources: [1]Argeris, 2010; [2]Cadena & Thomson, 2015; [3]Carson Matthews, 2009; [4]Corgel, Goebel, & Wade, 1982; [5]Elevate Energy, 2015; [6]Griffin, 2009; [7]Goodman & Zhu, 2016; [8]Institute for Market Transformation, 2015; [9]Kahn & Kok, 2013; [10]Pfleger et al., 2011.

*Not all studies shown have been peer reviewed.

Solar, when owned, has been found to increase values consistently

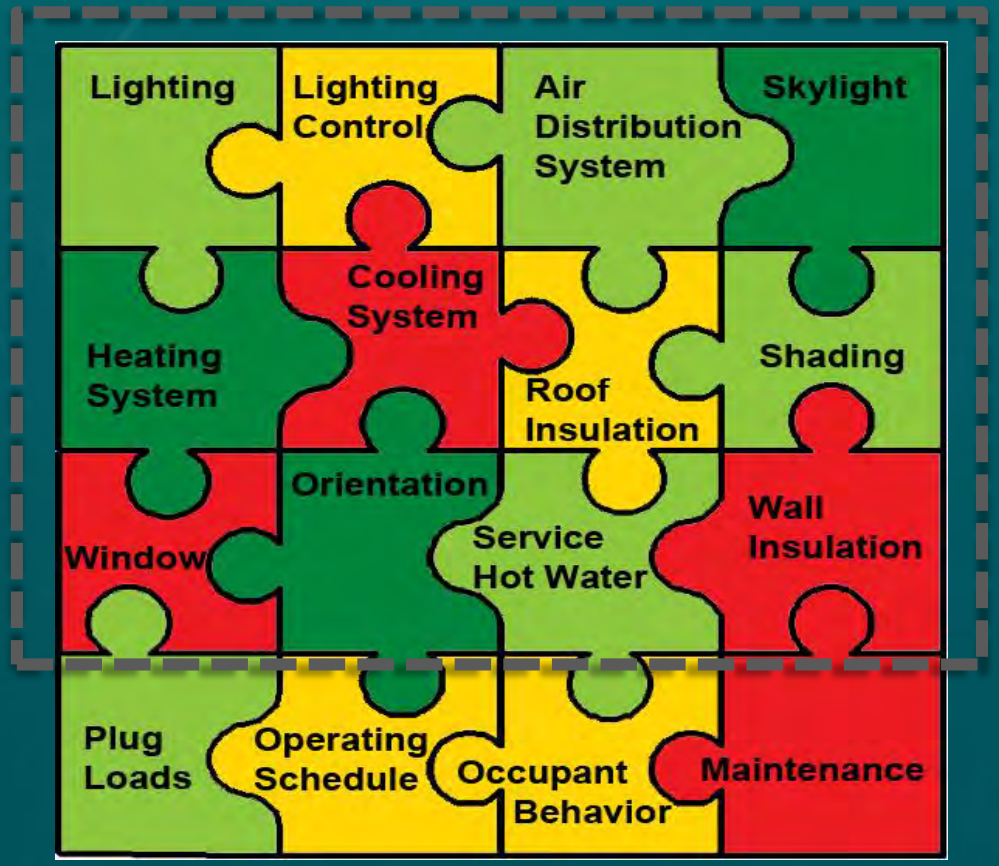


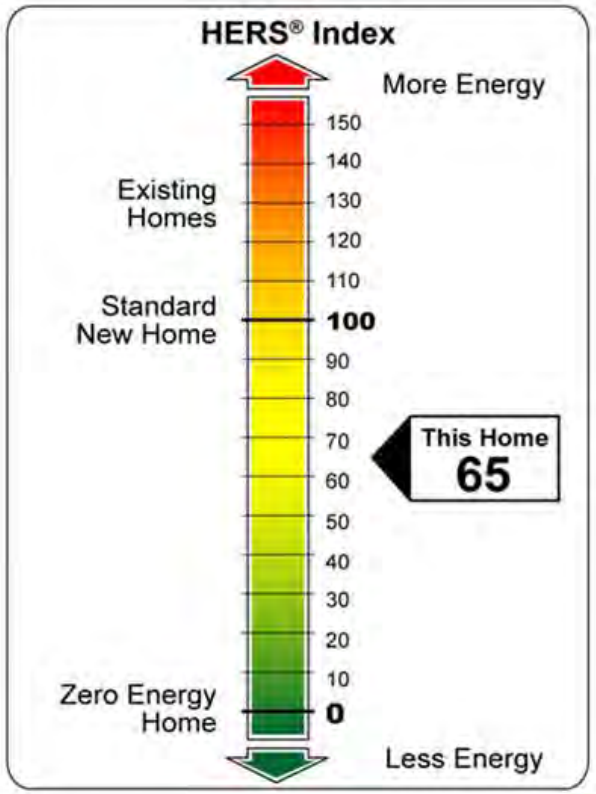


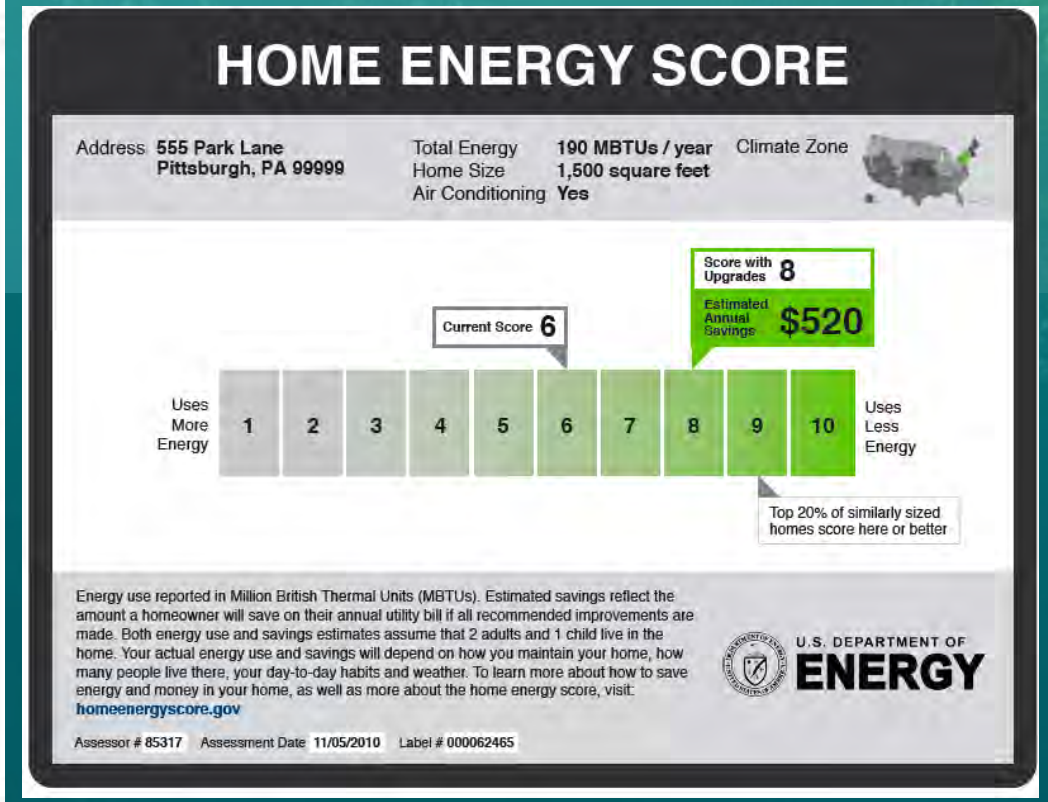
Q: What is the most appropriate way to provide this information for homes?

A: Asset ratings, AKA "MPGs for homes"

Asset Ratings (vs. Utility Bills)




HERS® Index
More Energy
Existing Homes
Standard New Home
Zero Energy Home
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
This Home 65
Less Energy


HOME ENERGY SCORE
Address: 555 Park Lane
Pittsburgh, PA 99999
Total Energy 190 MBTUs / year
Home Size 1,500 square feet
Air Conditioning Yes
Climate Zone
Score with Upgrades 8
Estimated Annual Savings $520
Current Score 6
Uses More Energy
1 2 3 4 5 6 7 8 9 10
Uses Less Energy
Top 20% of similarly sized homes score here or better
Energy use reported in Million British Thermal Units (MBTUs). Estimated savings reflect the amount a homeowner will save on their annual utility bill if all recommended improvements are made. Both energy use and savings estimates assume that 2 adults and 1 child live in the home. Your actual energy use and savings will depend on how you maintain your home, how many people live there, your day-to-day habits and weather. To learn more about how to save energy and money in your home, as well as more about the home energy score, visit: homeenergyscore.gov
U.S. DEPARTMENT OF ENERGY
Assessor # 85317 Assessment Date 11/05/2010 Label # 000062465


energy
ENERGY STAR HOMES


LEED™
FOR HOMES


ZERO
ENERGY READY HOME
U.S. DEPARTMENT OF ENERGY


PHIUS


NATIONAL GREEN BUILDING STANDARD™


LIVING BUILDING CHALLENGE℠


NET ZERO
ENERGY BUILDING CERTIFICATION℠

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**

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

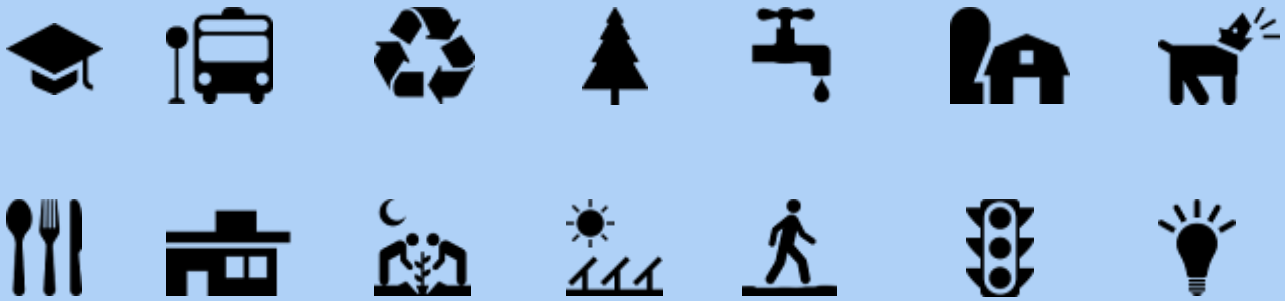
What About NY?

- 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

Introduction

Greenhouse Gas Reduction Targets		
Location	Reduction Target (%)	Target Year
New York State	80	2050
Tompkins County	80	2050
City of Ithaca	80	2050
Town of Ithaca Gov't	80	2050
Ithaca College	100	2050
Cornell University	100	2035

Introduction

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

RESP Project Overview

- **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
  - Many EE improvements are invisible
  - 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

RESP Project Overview


Refrigerator- Freezer
Capacity: 23 Cubic Feet
(Name of Corporation)
Model(s) AH503, AH504, AH507
Type of Defrost: Full Automatic

ENERGYGUIDE

Estimates on the scale based on a national average electric rate of 4.97¢ per kilowatt hour.

Only models with 22.5 to 22.4 cubic feet are compared in the scale

Model with lowest energy cost $68

$91 THIS MODEL

Model with highest energy cost $132

Your cost will vary depending on your local energy rate and how you use the product

How much will this model cost you to run yearly?

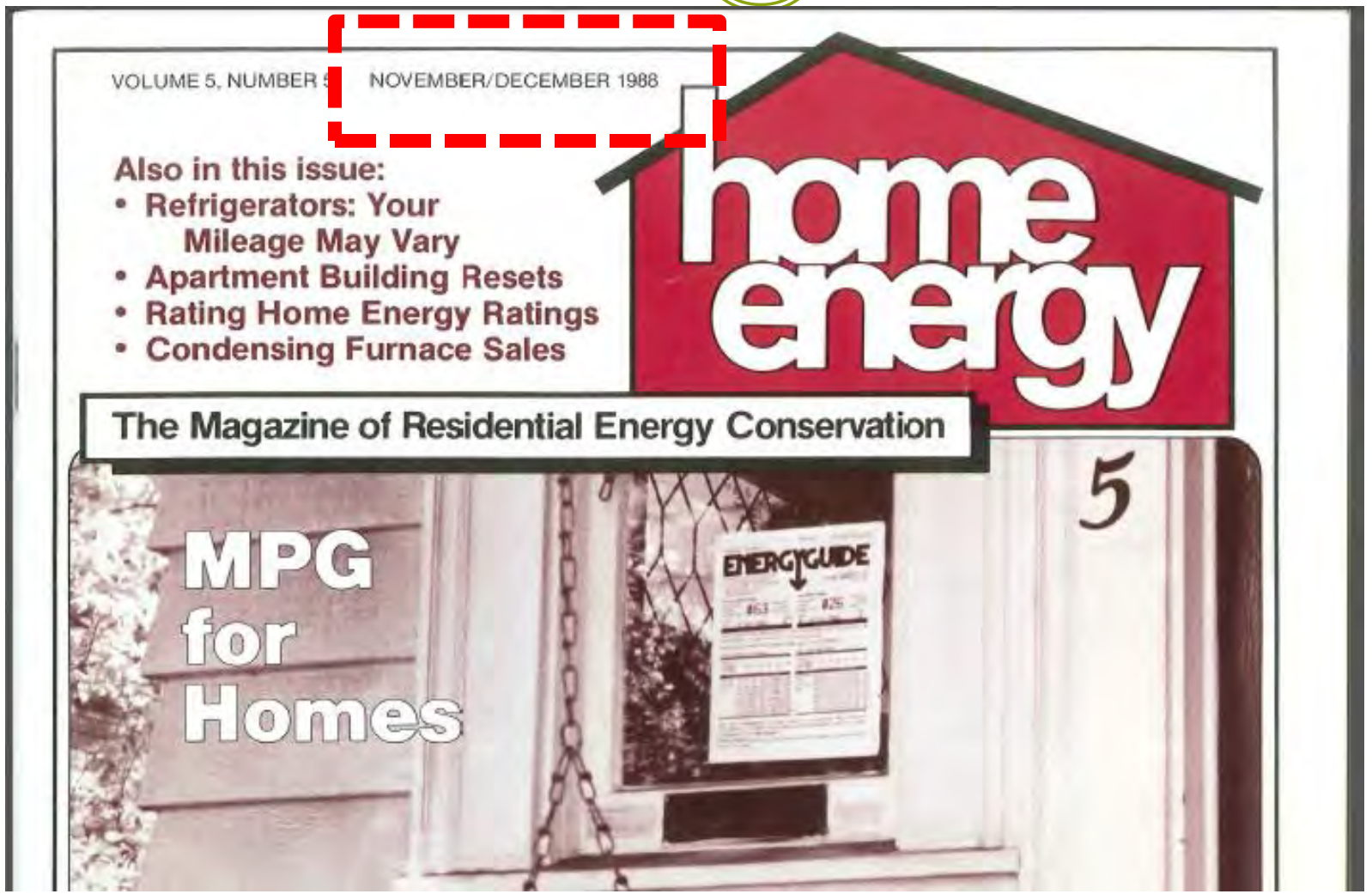
		Yearly cost
		Estimated yearly $ cost shown below
Cost per kilowatt hour	2¢	$36
	4¢	$73
	6¢	$109
	8¢	$146
	10¢	$182
	12¢	$218

Ask your salesperson or local utility for the energy rate (cost per kilowatt hour) in your area.

Important Removal of this label before consumer purchase is a violation of federal law (42 U. S. C. 6302)

A Sample Energy Efficiency Rating Label

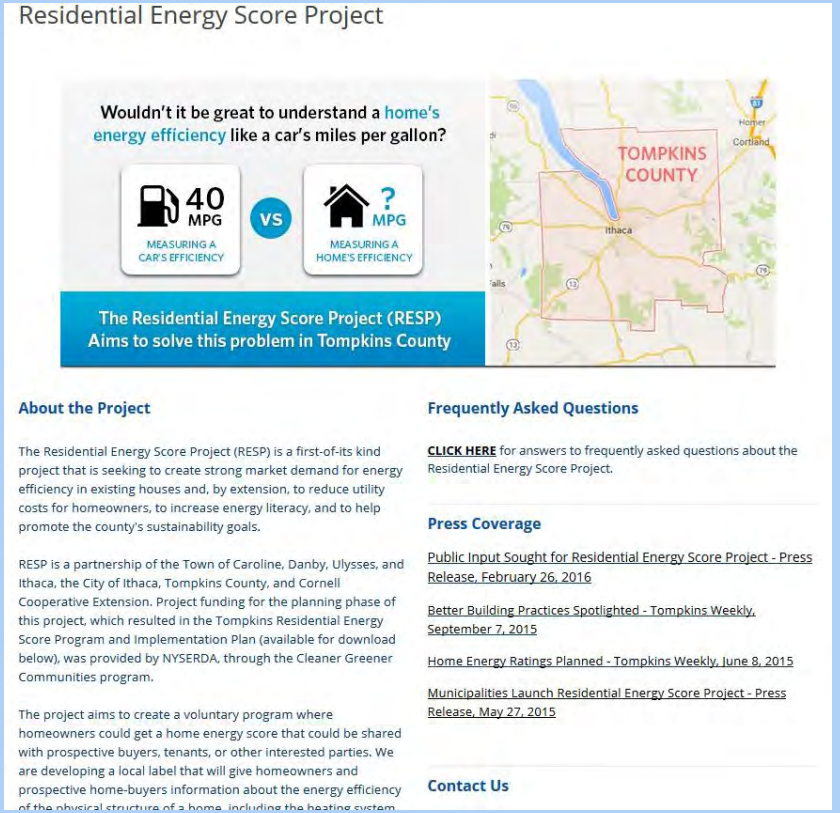
RESP Project Overview



Background Research

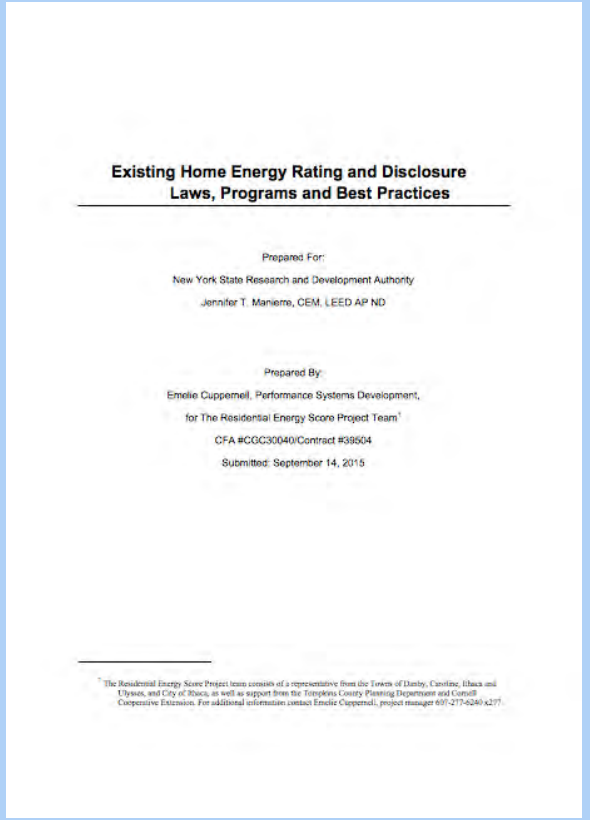
- All project documents available for download at:

www.town.ithaca.ny.us/resp



Background Research

- 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



Existing Home Energy Rating and Disclosure Laws, Programs and Best Practices

Prepared For:
New York State Research and Development Authority
Jennifer T. Manierre, CEM, LEED AP ND

Prepared By:
Emelie Cuppernell, Performance Systems Development,
for The Residential Energy Score Project Team[1]
CFA #CGC30040/Contract #39504
Submitted: September 14, 2015

[1] The Residential Energy Score Project team consists of a representative from the Towns of Danby, Caroline, Ithaca and Ulysses, and City of Ithaca, as well as support from the Tompkins County Planning Department and Cornell Cooperative Extension. For additional information contact Emelie Cuppernell, project manager 607-277-0240 x277.

- All project documents available for download at:

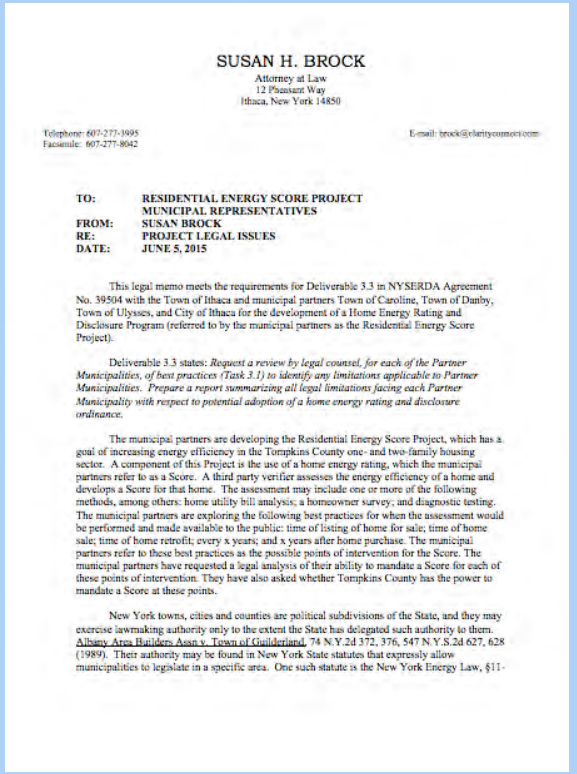
www.town.ithaca.ny.us/resp

Background Research

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

→Begin with voluntary program

  - A voluntary option can help build toward and inform a mandate down the road
  - A mandate may not be essential to achieve wide-spread adoption



SUSAN H. BROCK
Attorney at Law
12 Pheasant Way
Ithaca, New York 14850

Telephone: 607-277-1695
Facsimile: 607-277-8042
E-mail: brock@clarityconnect.com

TO: RESIDENTIAL ENERGY SCORE PROJECT MUNICIPAL REPRESENTATIVES
FROM: SUSAN BROCK
RE: PROJECT LEGAL ISSUES
DATE: JUNE 5, 2015

This legal memo meets the requirements for Deliverable 3.3 in NYSERDA Agreement No. 39504 with the Town of Ithaca and municipal partners Town of Caroline, Town of Danby, Town of Ulysses, and City of Ithaca for the development of a Home Energy Rating and Disclosure Program (referred to by the municipal partners as the Residential Energy Score Project).

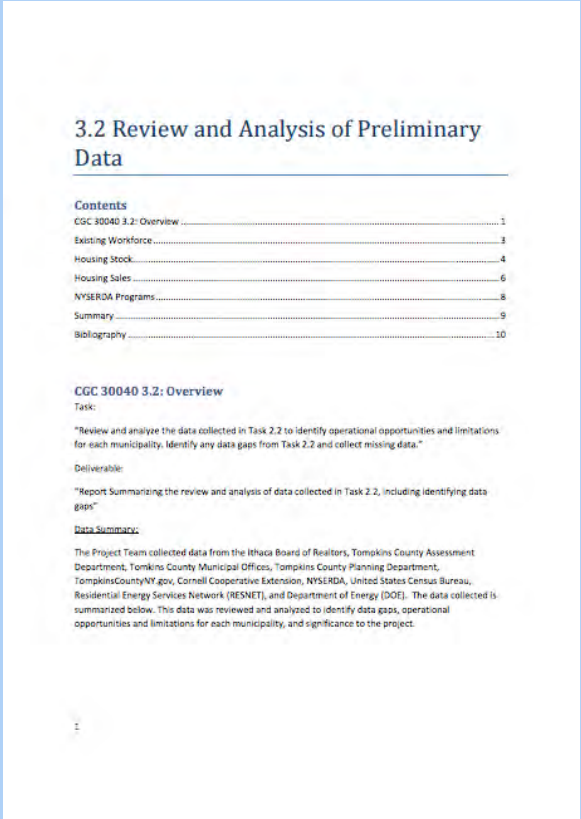
Deliverable 3.3 states: *Request a review by legal counsel, for each of the Partner Municipalities, of best practices (Task 3.1) to identify any limitations applicable to Partner Municipalities. Prepare a report summarizing all legal limitations facing each Partner Municipality with respect to potential adoption of a home energy rating and disclosure ordinance.*

The municipal partners are developing the Residential Energy Score Project, which has a goal of increasing energy efficiency in the Tompkins County one- and two-family housing sector. A component of this Project is the use of a home energy rating, which the municipal partners refer to as a Score. A third party verifier assesses the energy efficiency of a home and develops a Score for that home. The assessment may include one or more of the following methods, among others: home utility bill analysis; a homeowner survey; and diagnostic testing. The municipal partners are exploring the following best practices for when the assessment would be performed and made available to the public: time of listing of home for sale; time of home sale; time of home retrofit; every x years; and x years after home purchase. The municipal partners refer to these best practices as the possible points of intervention for the Score. The municipal partners have requested a legal analysis of their ability to mandate a Score for each of these points of intervention. They have also asked whether Tompkins County has the power to mandate a Score at these points.

New York towns, cities and counties are political subdivisions of the State, and they may exercise lawmaking authority only to the extent the State has delegated such authority to them. Albany Area Builders Assn v. Town of Guilderland, 74 N.Y.2d 372, 376, 547 N.Y.S.2d 627, 628 (1989). Their authority may be found in New York State statutes that expressly allow municipalities to legislate in a specific area. One such statute is the New York Energy Law, §11-

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



3.2 Review and Analysis of Preliminary Data

Contents

CGC 30040 3.2: Overview

Task:

"Review and analyze the data collected in Task 2.2 to identify operational opportunities and limitations for each municipality. Identify any data gaps from Task 2.2 and collect missing data."

Deliverable:

"Report Summarizing the review and analysis of data collected in Task 2.2, including identifying data gaps"

Data Summary:

The Project Team collected data from the Ithaca Board of Realtors, Tompkins County Assessment Department, Tomkins County Municipal Offices, Tompkins County Planning Department, TompkinsCountyNY.gov, Cornell Cooperative Extension, NYSERDA, United States Census Bureau, Residential Energy Services Network (RESNET), and Department of Energy (DOE). The data collected is summarized below. This data was reviewed and analyzed to identify data gaps, operational opportunities and limitations for each municipality, and significance to the project.

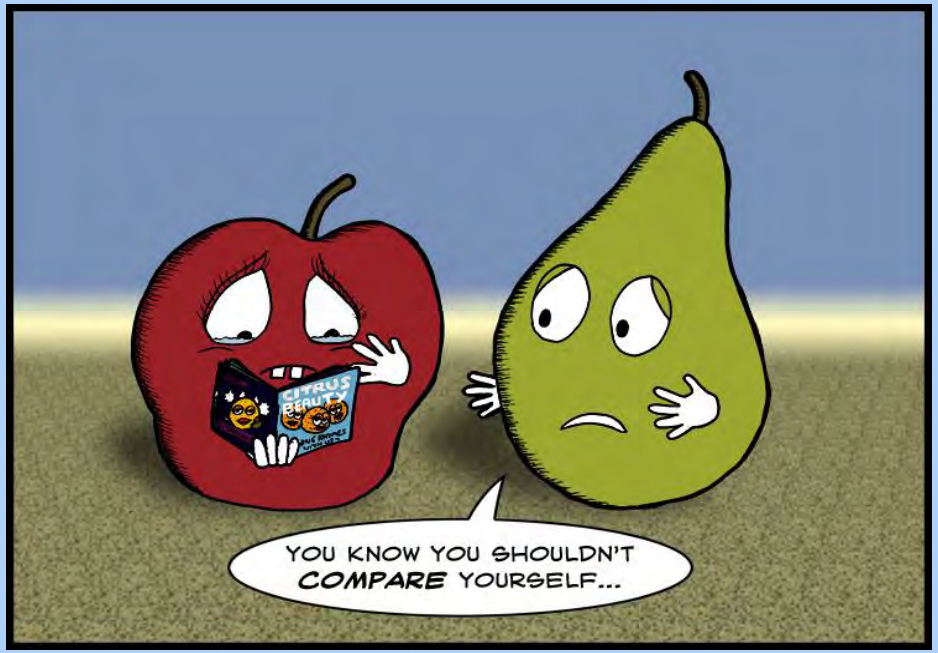
Results – Key Elements of Program

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

- ▼ Utility Costs Reduced
- ▼ CO_2 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

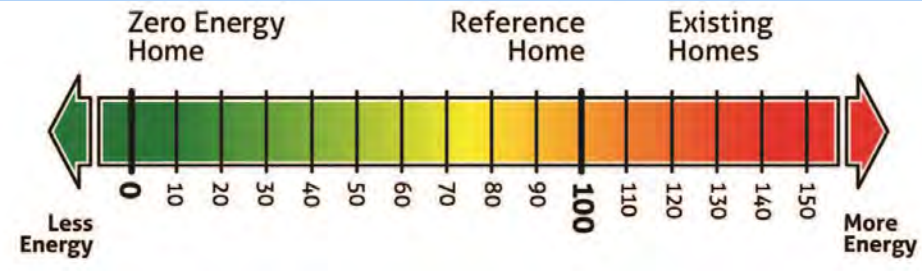
HERS Index

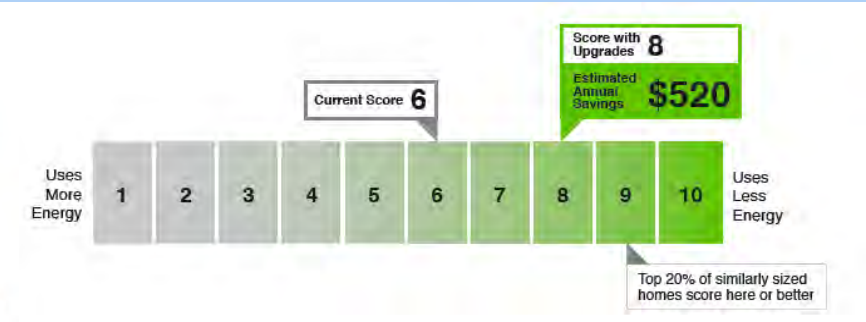
- RESNET - Home Energy Rating System Index
- More than 1 million ratings since 1995
- Used to qualify homes for ENERGY STAR, LEED, DOE Zero Energy Ready Home
- 2016 NYS Energy Code: Energy Rating Index Compliance Option

Home Energy Score (HES)

- U.S. Department of Energy
- 56,000 ratings since 2012
- Used in labeling programs in more than 10 states

Results – Rating System



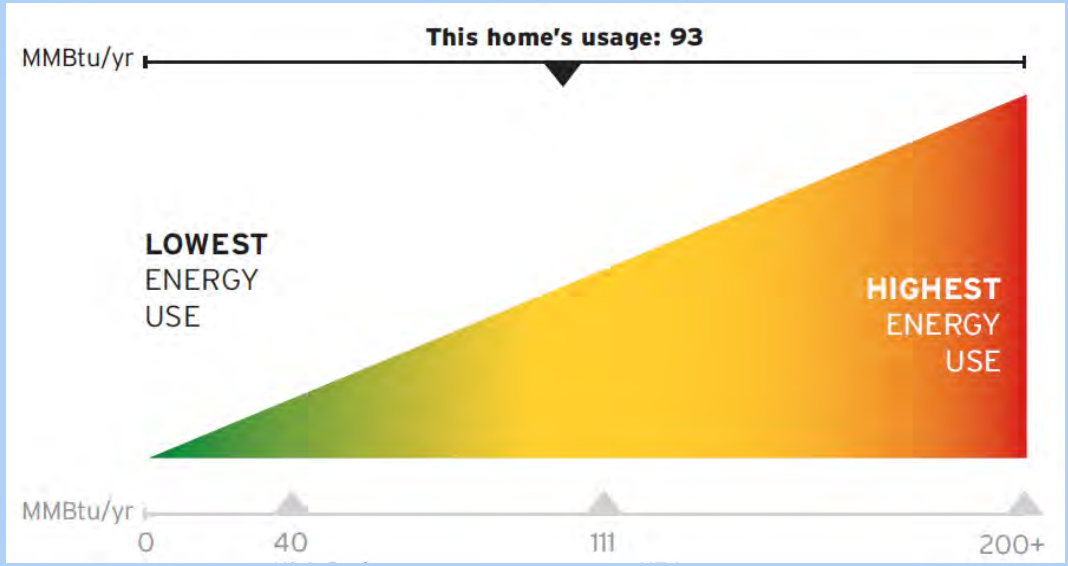


RESNET HERS		DOE HES
More expensive	COST	Less expensive
Single- and multi-family	SCOPE	Single-family & townhouses
New construction	PRIMARY MARKET	Existing homes
Less simple	SCORE COMPLEXITY	More simple
Lower is better	DIRECTION OF SCORE	Higher is better
High	LEVEL OF DETAIL	Low

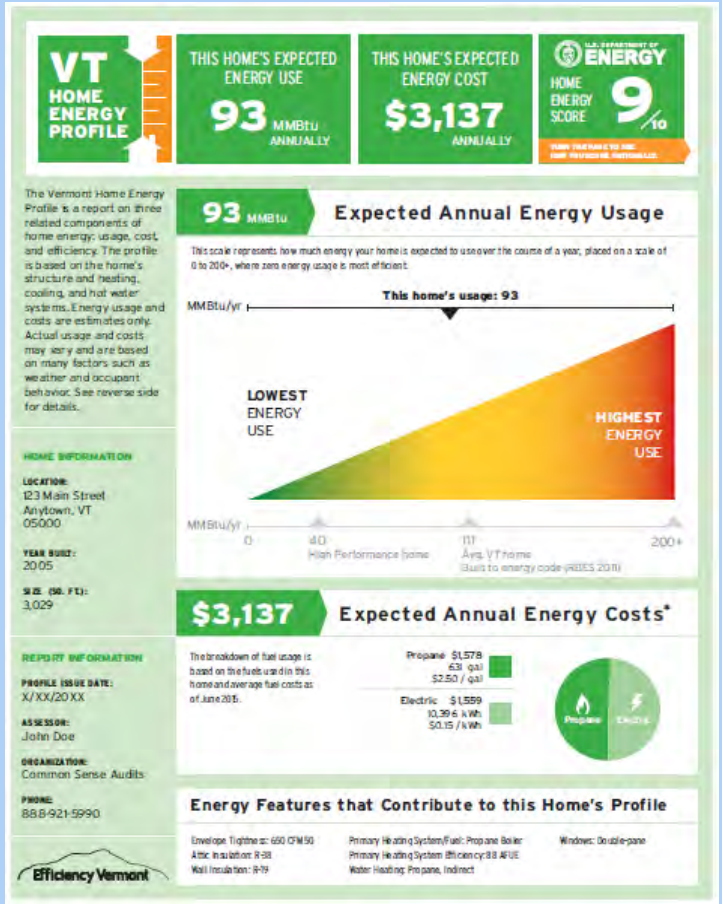
Results – Score

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

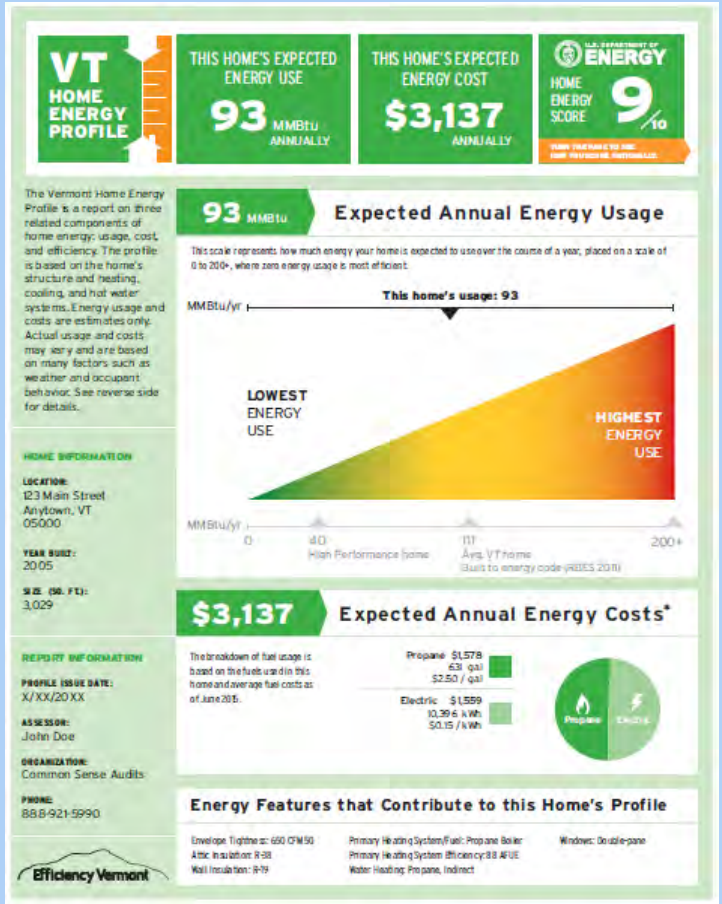


Results – Label



A Sample Energy Efficiency Rating Label

Results – Label



VT HOME ENERGY PROFILE

THIS HOME'S EXPECTED ENERGY USE
93 MMBtu ANNUALLY

THIS HOME'S EXPECTED ENERGY COST
$3,137 ANNUALLY

U.S. DEPARTMENT OF ENERGY
HOME ENERGY SCORE 9/10

The Vermont Home Energy Profile is a report on three related components of home energy: usage, cost, and efficiency. The profile is based on the home's structure and heating, cooling, and hot water systems. Energy usage and costs are estimates only. Actual usage and costs may vary and are based on many factors such as weather and occupant behavior. See reverse side for details.

HOME INFORMATION

LOCATION:
123 Main Street
Anytown, VT
05000

YEAR BUILT:
2005

SIZE (SQ. FT.):
3,029

REPORT INFORMATION

PROFILE ISSUE DATE:
X/XX/20XX

ASSESSOR:
John Doe

ORGANIZATION:
Common Sense Audits

PHONE:
888-921-5990

Efficiency Vermont

93 MMBtu Expected Annual Energy Usage

This scale represents how much energy your home is expected to use over the course of a year, placed on a scale of 0 to 200+, where zero energy usage is most efficient.

This home's usage: 93

MMBtu/yr

LOWEST ENERGY USE

HIGHEST ENERGY USE

MMBtu/yr
0 40 High Performance home 111 Avg. VT home Built to energy code (RBES 2011) 200+

$3,137 Expected Annual Energy Costs*

The breakdown of fuel usage is based on the fuels used in this home and average fuel costs as of June 2015.

Propane $1,578
631 gal
$2.50 / gal

Electric $1,559
10,396 kWh
$0.15 / kWh

Propane Electric

Energy Features that Contribute to this Home's Profile

Envelope Tightness: 650 CFM50
Attic Insulation: R-38
Wall Insulation: R-19

Primary Heating System/Fuel: Propane Boiler
Primary Heating System Efficiency: 88 AFUE
Water Heating: Propane, Indirect

Windows: Double-pane

U.S. DEPARTMENT OF ENERGY

U.S. DOE HOME ENERGY SCORE

The data utilized to produce this home's Vermont Home Energy Profile can also show how your home compares to others nationwide. The U.S. Department of Energy (DOE) Home Energy Score uses a 10-point scale to describe your home's efficiency – where 10 is the most efficient. For more information about the home's national score, visit www.homeenergyscore.gov

Home Energy Score

ENERGY

HOW DOES THE VERMONT HOME ENERGY PROFILE WORK?

Vermont Home Energy Profile is a tool to assess a home's energy consumption and average associated costs. The lower the expected MMBtu on a scale of 0-200, the better! A low MMBtu identifies a home as energy efficient with a smaller carbon footprint and lower energy costs. The Vermont Home Energy Profile also allows for the comparison of one home's energy costs and use to another home. The MMBtu calculation is based on a home's size, insulation levels, draftiness, heating and cooling systems, and hot water heating efficiency. This profile is based on the building features themselves, not on how a particular occupant uses the building. Number of occupants, behavior, weather, indoor temperature, lighting and appliance usage, are standardized to calculate normal, average energy use based on the assets which make up the home. A home's actual energy use will vary with conditions such as occupancy behavior, weather, and changes to the home. Assessments are completed by qualified Assessors who must meet DOE certification requirements.

ASSUMPTIONS

Average Vermont fuel prices are used to generate the estimated annual energy costs presented in this score. Values are obtained from the Vermont Fuel Price Report. The following table shows pricing assumptions used in this report.

COMPARING THE COST OF HEATING FUELS

TYPE OF ENERGY	BTU/UNIT	TYP. EFFIC.	$/UNIT	$/MMBTU		HIGH EFFICIENCY	$/MMBTU
Fuel Oil, Gallon	138,200	80%	$2.67	$24.16		95%	$22.65
Kerosene, Gallon	136,600	80%	$3.24	$29.60			
Propane, Gallon	91,600	80%	$2.50	$34.14		93%	$28.97
Natural Gas, Therm	100,000	80%	$1.43	$17.90	*	95%	$15.69
Electricity, kWh (Resistance Heat)	3,412	100%	$0.15	$43.96			
Electricity, kWh (Cold-Climate Heat Pump)	3,412		$0.15			266%	$16.32
Wood, Cord (Green)	22,000,000	60%	$223.04	$17.23	*		
Pellets, Ton	16,400,000	80%	$294	$22.41	*		

* The natural gas price is based on the rate effective 5/6/15. Wood, green, and Pellet updated 5/2014. Current fuel price reports can be obtained from the Public Service Department website: http://publicservice.vermont.gov/publications/fuel_report

REFERENCE HOMES FOR EXPECTED ENERGY USE SCALE

LOWEST ENERGY USE - A highly efficient home that produces as much energy as it consumes is considered a Net Zero Home. This home would have a 0 score.

AVERAGE VERMONT HOME - An average Vermont home is defined as 1,912 square feet, oil boiler and integrated hot water, built to Vermont's minimum energy code specifications (RBES 2011).

HIGH PERFORMANCE HOME - Efficiency Vermont's highest performing residential new construction service tier. These homes can be up to 15% more energy efficient than a home built to code.

HIGHEST ENERGY USE - Some of the most inefficient homes in Vermont can consume over 200 MMBtu/year in total energy.

USEFUL TERMINOLOGY

MMBTU = 1 MILLION BTUS - A btu (British Thermal Unit) is a unit of energy, specifically the amount of energy required to raise 1 lb. of water 1 degree Fahrenheit. For reference, this is approximately the amount of energy released by burning 1 wooden match. 1 MMBtu = 7 gal fuel oil, 10 therms of natural gas, 9 gal of propane, or 293 kWh of electricity.

ENERGY CODE - Vermont's Residential Building Energy Standards (RBES) were enacted in 1998. These standards set minimum energy performance guidelines for new construction and renovation building features. For more information see: www.publicservice.vermont.gov/topics/energy_efficiency/rbes

ADDITIONAL RESOURCES

CARBON FOOTPRINT

As it relates to this profile, the amount of CO2 (in tons) released into the atmosphere per year as a result of the energy used to operate your home. Total carbon footprint includes the products we consume as well as transportation and other activities. You can calculate your carbon footprint from the data supplied by your Vermont Home Energy Profile. Learn how by visiting:
www.epa.gov/climatechange/ghgemissions/ind-calculator.html

LOCATION EFFICIENCY

Curious how your neighborhood ranks in terms of total cost of home ownership and transportation? Take a look at the Center for Neighborhood Technology's Housing and Transportation Affordability Index at https://htaindex.cnt.org/map

ENERGY EFFICIENCY PROGRAMS

The following programs can help get you on the path to making your home more energy efficient.

Efficiency Vermont - 888-921-5990 - www.efficiencyvermont.com

Vermont Gas Systems - 802-863-4511 - www.vermontgas.com

Burlington Electric Department - 802-865-7342 - www.burlingtonelectric.com

Neighbor Works of Western Vermont - 802-438-2303 - www.nwvt.org

Vermont's Weatherization Program - www.dcf.vermont.gov/benefits/weatherization

Efficiency Vermont

Efficiency Vermont was created by the Vermont Legislature and the Vermont Public Service Board to help all Vermonters reduce energy costs, strengthen the economy, and protect Vermont's environment. For more information, contact Efficiency Vermont at 888-921-5990 or visit www.efficiencyvermont.com.

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

Implementation (Local)

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

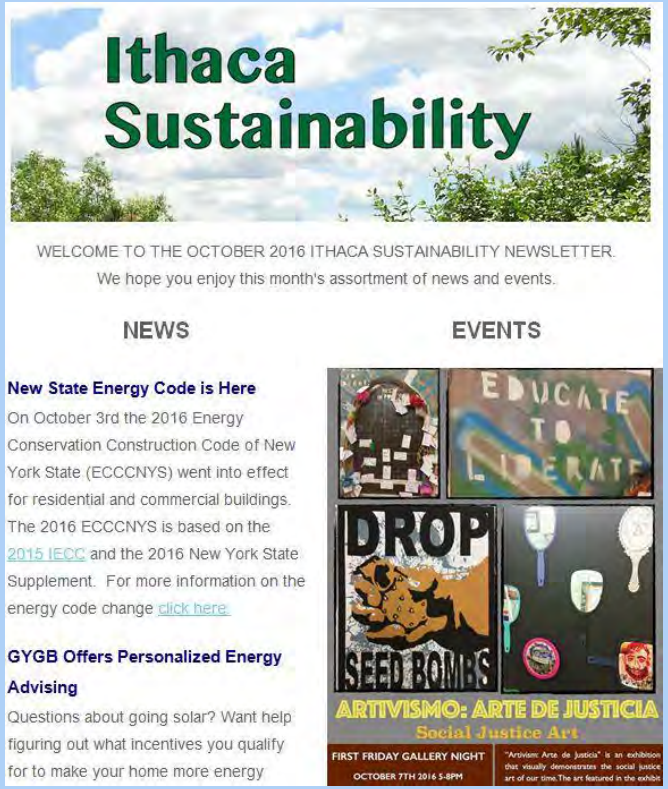
- More RESP information and document downloads available at www.town.ithaca.ny.us/resp

- 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

607-273-1721 ext. 136

ngoldsmith@town.ithaca.ny.us

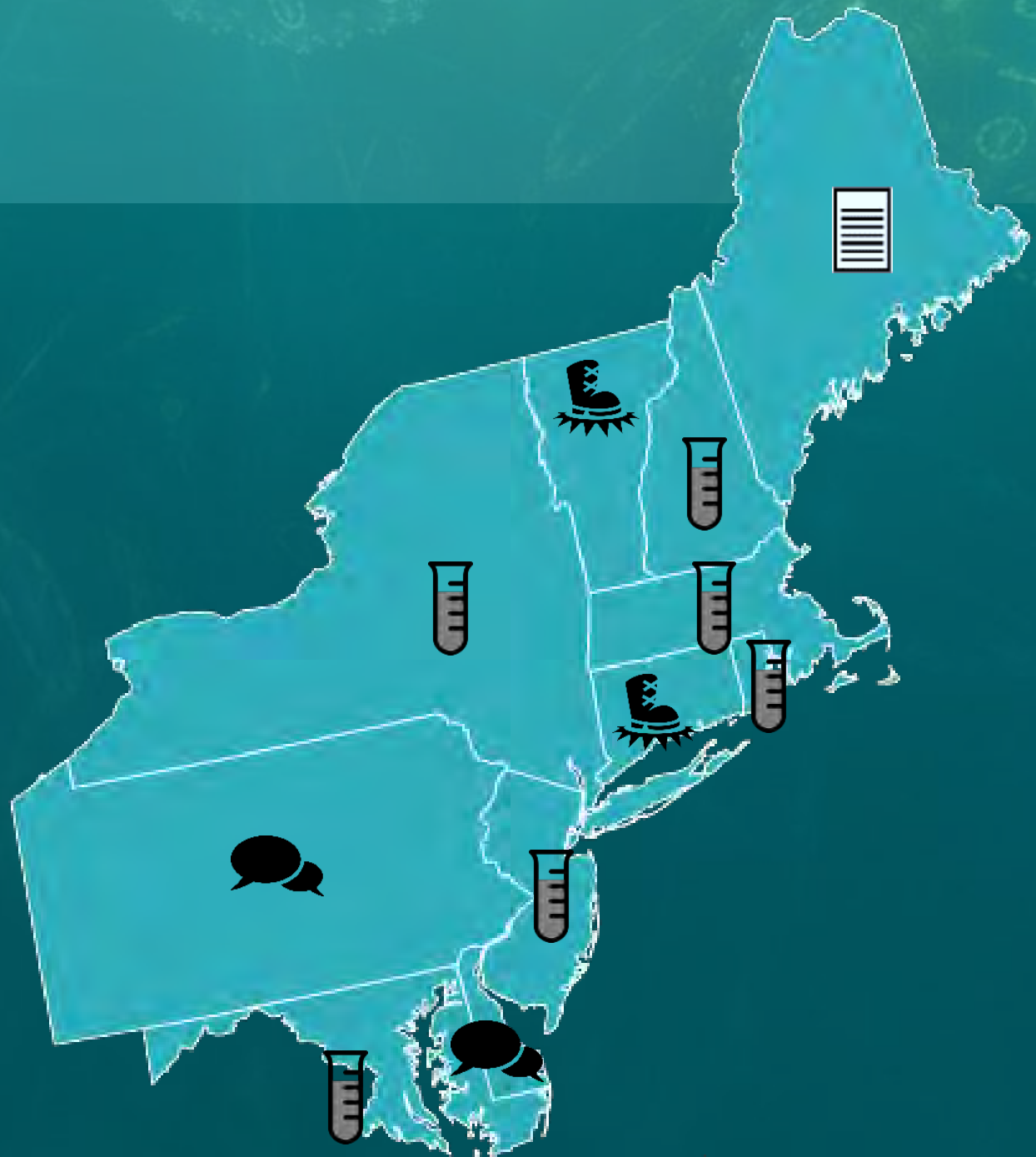
Regional Update

Implementation

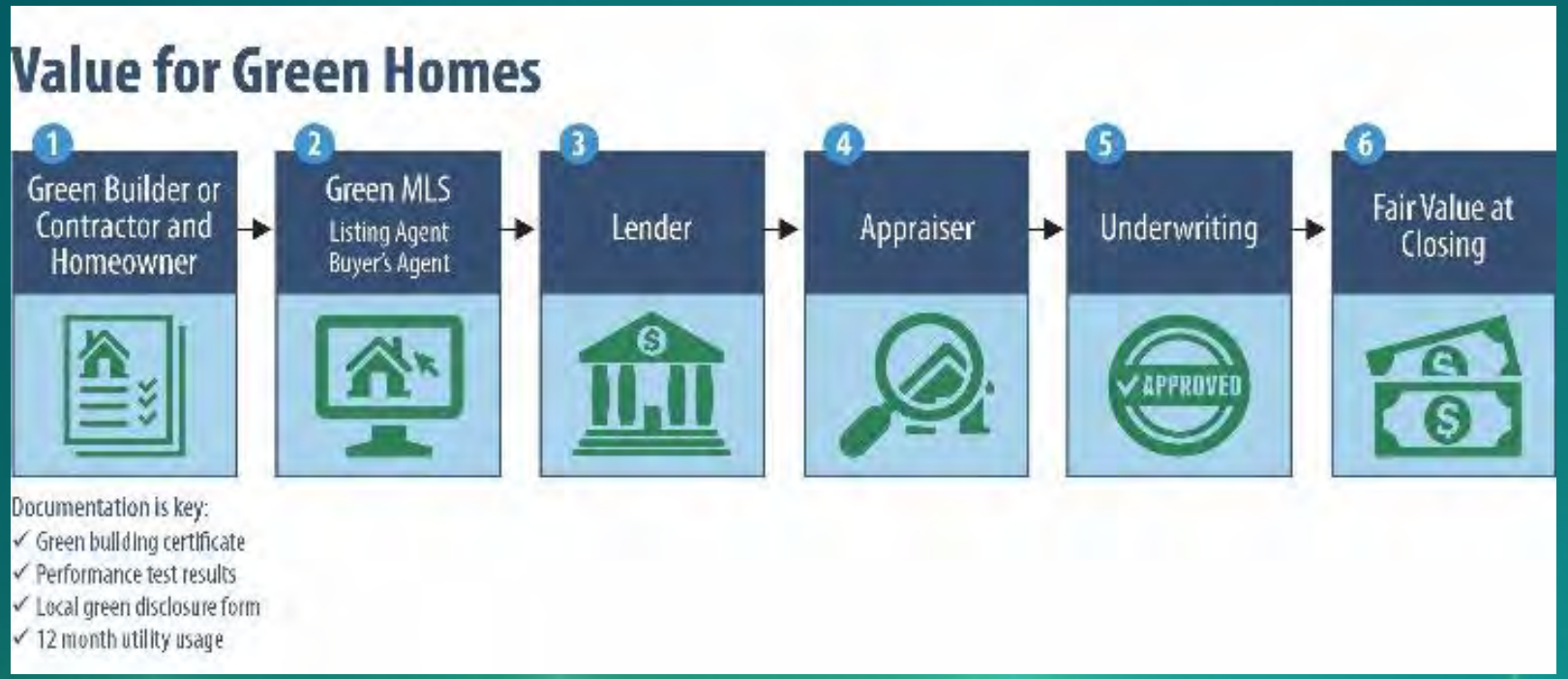
Pilot

Discussion

Legislation



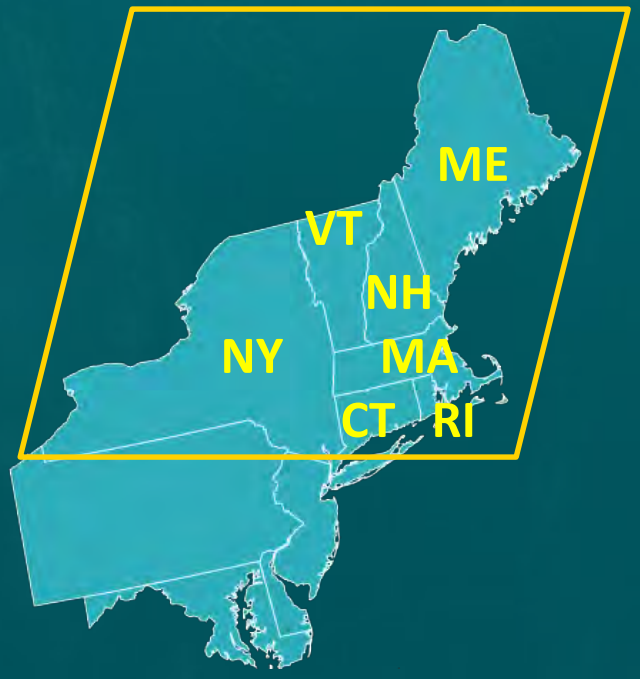
Real Estate Industry Response – Education!



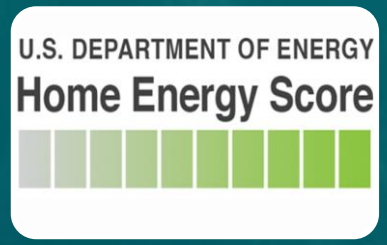
RESO®
REAL ESTATE STANDARDS ORGANIZATION

How does this information get to home buyers / renters?

A: It doesn't … yet!

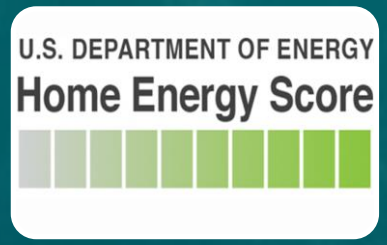


Data Flow – April 2017



Auditor → Owner, DOE ⊘ RE Agent ⊘ MLS

Data Flow – April 2018 (est.)



Auditor → Owner, DOE → HELIX → MLS

Goal: Connect Home Energy Investments to Property Values

U.S. DEPARTMENT OF ENERGY

energize CONNECTICUT

DOER Massachusetts Department of Energy Resources

Vermont Energy Investment Corporation

VERMONT PUBLIC SERVICE DEPARTMENT

ENERGY FUTURES GROUP

NASEO National Association of State Energy Officials

SUSTAINABLE REAL ESTATE CONSULTING SERVICES

A3P STRATEGIES
Accelerating Procurement, Product, and Performance

Beyond DOE HES

U.S. DEPARTMENT OF ENERGY
Home Energy Score

MLS
MULTIPLE LISTING SERVICE®

HELIX

RESNET
HERS®
INDEX

trulia
real estate search

REALTOR.com
REALTOR

Zillow.com

HELIX Project Elements

- **Database design and development**
- Stakeholder engagement
- Real estate community outreach, training
- Governance, Ownership, and Longevity

Project Timeline

Today

Year 1:	Year 2:	Year 3:
Research and Scoping	Development and Testing	Full Implementation

Summary

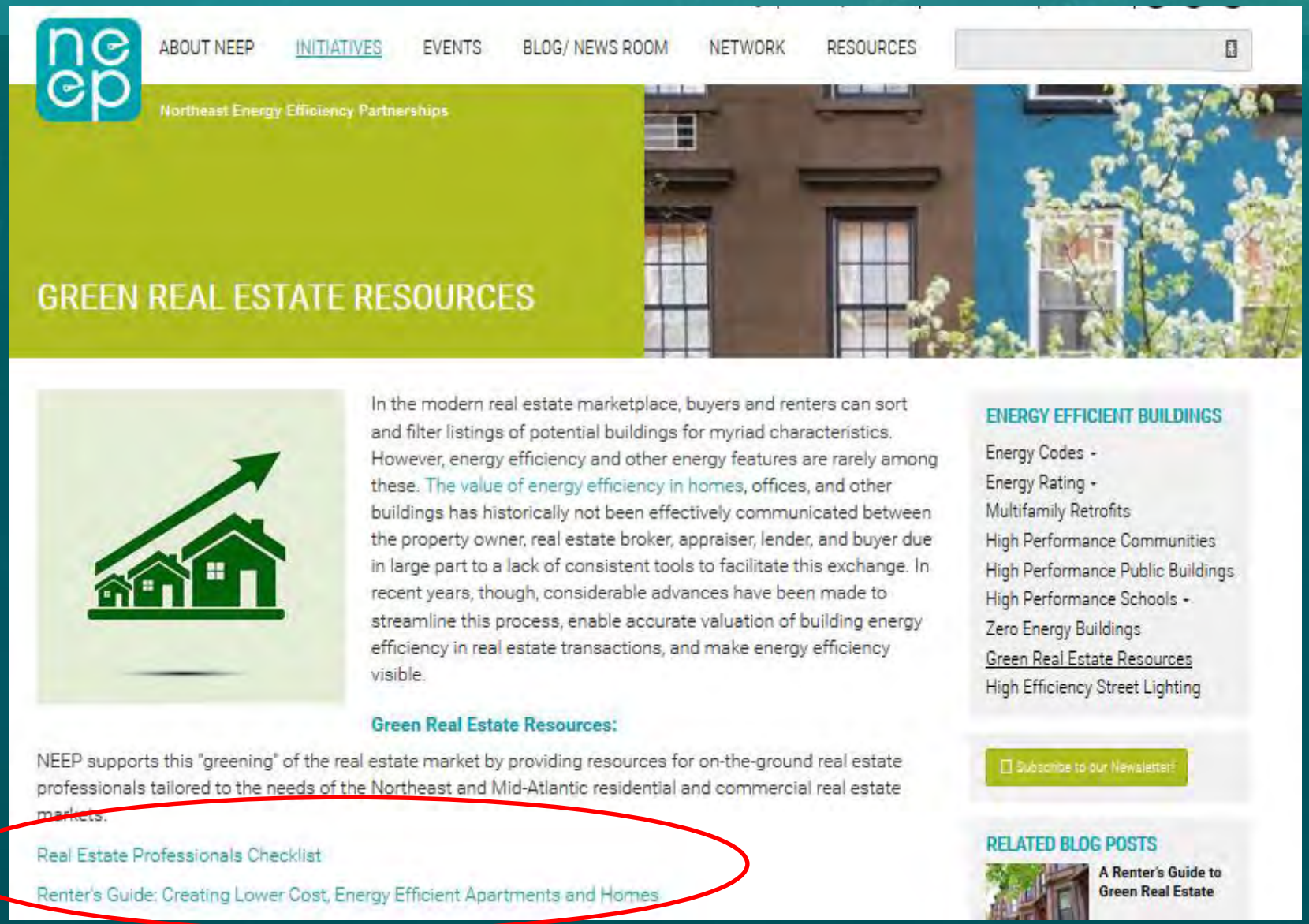
Home Energy Data? ☑

Accessible? ☒

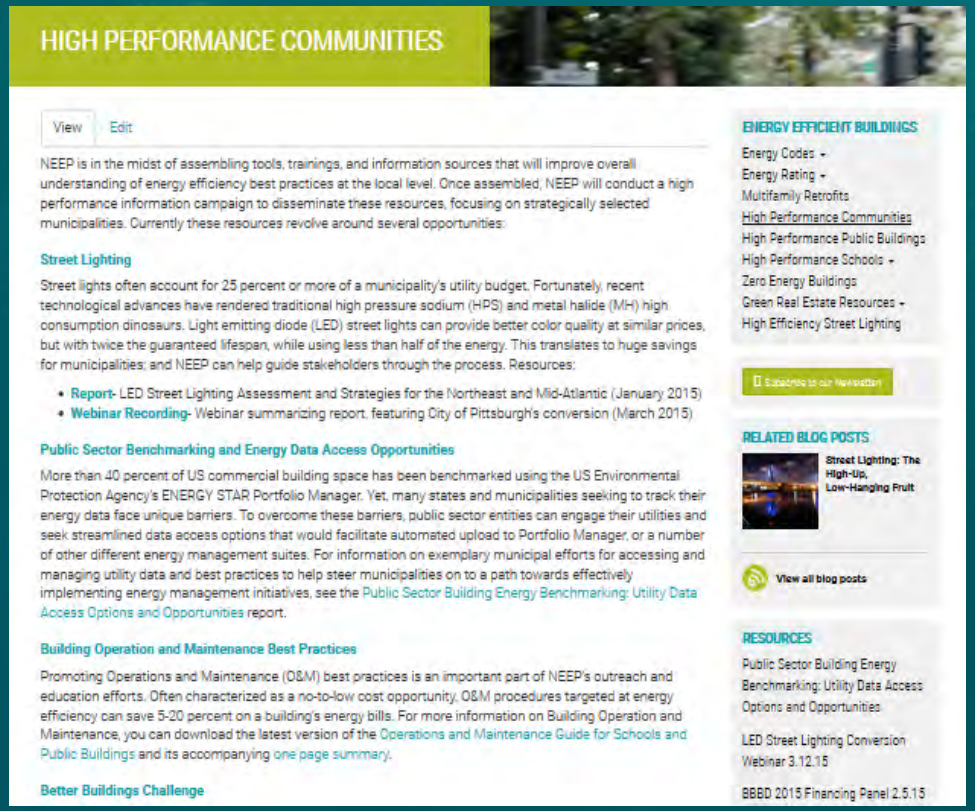
Real Estate System Standardization? ☑

Autopop-able? ☒

Resources at neep.org



NEEP Resources for Communities



HIGH PERFORMANCE COMMUNITIES

View Edit

NEEP is in the midst of assembling tools, trainings, and information sources that will improve overall understanding of energy efficiency best practices at the local level. Once assembled, NEEP will conduct a high performance information campaign to disseminate these resources, focusing on strategically selected municipalities. Currently these resources revolve around several opportunities:

Street Lighting

Street lights often account for 25 percent or more of a municipality's utility budget. Fortunately, recent technological advances have rendered traditional high pressure sodium (HPS) and metal halide (MH) high consumption dinosaurs. Light emitting diode (LED) street lights can provide better color quality at similar prices, but with twice the guaranteed lifespan, while using less than half of the energy. This translates to huge savings for municipalities; and NEEP can help guide stakeholders through the process. Resources:

- **Report**- LED Street Lighting Assessment and Strategies for the Northeast and Mid-Atlantic (January 2015)
- **Webinar Recording**- Webinar summarizing report, featuring City of Pittsburgh's conversion (March 2015)

Public Sector Benchmarking and Energy Data Access Opportunities

More than 40 percent of US commercial building space has been benchmarked using the US Environmental Protection Agency's ENERGY STAR Portfolio Manager. Yet, many states and municipalities seeking to track their energy data face unique barriers. To overcome these barriers, public sector entities can engage their utilities and seek streamlined data access options that would facilitate automated upload to Portfolio Manager, or a number of other different energy management suites. For information on exemplary municipal efforts for accessing and managing utility data and best practices to help steer municipalities on to a path towards effectively implementing energy management initiatives, see the Public Sector Building Energy Benchmarking: Utility Data Access Options and Opportunities report.

Building Operation and Maintenance Best Practices

Promoting Operations and Maintenance (O&M) best practices is an important part of NEEP's outreach and education efforts. Often characterized as a no-to-low cost opportunity, O&M procedures targeted at energy efficiency can save 5-20 percent on a building's energy bills. For more information on Building Operation and Maintenance, you can download the latest version of the Operations and Maintenance Guide for Schools and Public Buildings and its accompanying one page summary.

Better Buildings Challenge

ENERGY EFFICIENT BUILDINGS

Energy Codes
Energy Rating
Multifamily Retrofits
High Performance Communities
High Performance Public Buildings
High Performance Schools
Zero Energy Buildings
Green Real Estate Resources
High Efficiency Street Lighting

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RELATED BLOG POSTS

Street Lighting: The High-Up, Low-Hanging Fruit

View all blog posts

RESOURCES

Public Sector Building Energy Benchmarking: Utility Data Access Options and Opportunities

LED Street Lighting Conversion Webinar 3.12.15

BBBD 2015 Financing Panel 2.5.15

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

Thank you!

- Kevin Rose
- Senior Building Energy Technical Associate
- Northeast Energy Efficiency Partnerships
- krose@neep.org

Questions?

- Office of Climate Change
- NYS Department of Environmental Conservation
- 625 Broadway
  Albany NY 12233-1030
- climatechange@dec.ny.gov
- 518-402-8448

Webinar slides & recordings will be posted at
http://www.dec.ny.gov/energy/84359.html

NYS Climate Change Science Clearinghouse:
https://www.nyclimatescience.org/

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NEW YORK STATE OF OPPORTUNITY. Climate Smart Communities

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation