



VERMONT LAW SCHOOL
INSTITUTE FOR ENERGY AND THE ENVIRONMENT
NEEP – HELIX PROJECT

MEMORANDUM

To: HELIX Advisory Council

From: Mark James and Roxana-Andreea Mastor

Date: 01/20/2017

Re: NEEP HELIX Task 4.4: Identify and recommend options to promote home energy rating and labeling

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	4
2. INTRODUCTION	8
3. PROMOTION OPTIONS.....	9
3.1 Addressing data privacy concerns by Consent and Contractual Amendments	9
3.1.1 Opt-in/Opt-out Consent for Existing Data.....	9
3.1.2 Contractual Amendments.....	10
3.1.3 Consent Mechanisms for Specific Scoring Systems.....	12
3.1.3.1 HERS.....	12
3.1.3.2 ENERGY STAR Certified Homes	13
3.1.3.3 LEED.....	14
3.1.3.4 Passive House.....	15
3.1.3.5 Analysis.....	15
3.2 Legislative and Regulatory Reform	16
3.2.1 Municipal Energy Disclosure Programs	16

3.2.1.1	Municipal Disclosure Laws.....	17
3.2.1.1.1	Municipalities in NEEP HELIX states	17
3.2.1.1.1.1	Home Rule.....	18
3.2.1.1.1.2	Benchmarking and Privacy	19
3.2.1.1.2	Municipalities outside NEEP HELIX states.....	19
3.2.1.1.2.1	Benchmarking	19
3.2.1.1.2.2	Asset Rating Examples.....	23
3.2.1.1.3	Analysis	26
3.2.2	State Regulation of Real Estate Transaction disclosure laws	26
3.2.2.1	Connecticut.....	28
3.2.2.2	Maine.....	29
3.2.2.3	Massachusetts.....	30
3.2.2.4	New Hampshire.....	31
3.2.2.5	New York	32
3.2.2.6	Rhode Island.....	33
3.2.2.7	Vermont.....	34
3.2.2.8	Analysis.....	35
3.2.3	Building Codes.....	35
3.2.3.1	Introduction	35
3.2.3.2	Model Building Codes and the ICC	37
3.2.3.2.1	Adoption of the IECC	38
3.2.3.2.2	Compliance and Enforcement with the IECC	39
3.2.3.2.3	2009 IECC	40
3.2.3.2.4	2012 IECC	42
3.2.3.2.5	2015 IECC	43
3.2.3.2.6	Stretch Codes	44
3.2.3.3	NEEP HELIX States Analysis of applicable Building Energy Codes	45
3.2.3.3.1	Connecticut	46
3.2.3.3.2	Maine	47
3.2.3.3.3	Vermont	49

3.2.3.3.4	Massachusetts	50
3.2.3.3.5	Rhode Island	52
3.2.3.3.6	New York.....	53
3.2.3.3.7	New Hampshire	54
3.2.3.3.8	Oregon and California Case Studies	56
3.2.3.3.8.1	Oregon.....	56
3.2.3.3.8.2	California.....	57
3.2.3.4	Analysis.....	60
3.3	Finance and Home Energy Ratings.....	61
3.3.1	Introduction.....	61
3.3.2	PACE	61
3.3.2.1	Introduction	61
3.3.2.2	Integration with Home Energy Ratings.....	63
3.3.2.3	State-by-state Analysis	63
3.3.3	Federal Housing Administration (FHA).....	65
3.3.3.1	Introduction	65
3.3.3.2	Integration with Home Energy Ratings.....	66
3.3.4	Fannie Mae.....	67
3.3.4.1	Introduction	67
3.3.4.2	Integration with Home Energy Ratings.....	67
3.3.5	Analysis.....	68
4	CONCLUSION	70

1. EXECUTIVE SUMMARY

The following key findings stand out from the analysis undertaken in this Memorandum on options to promote energy rating and labeling:

I. Addressing data privacy concerns by Consent and Contractual Amendments:

- Obtaining consent to input home energy ratings into HELIX is a key step to building the profile of the database. Our research reveals that the method to obtain consent from homes with existing ratings differs from the method that will be deployed to obtain consent from homes that will be rated in the future.
 - Homes with existing scores – HES, HERS, and Energy Star – will need to be re-contacted to gain their approval to populate their rating through HELIX.
 - For homes that will be scored in the future, consent clauses should be inserted in the contractual arrangement between the assessor and the customer to allow for the rating to be uploaded into HELIX.
 - Homes rated using the LEED or Passive House standards may not require the solicitation of additional consent as they appear to already include consent mechanism within their standard contract.

II. Legislative and Regulatory Reform:

- Most municipal energy disclosure ordinance and by-laws are focused on benchmarking energy consumption in large commercial and multi-unit residential buildings.
- NEEP HELIX states are home rule states which gives municipalities the power to enact regulations without getting the approval of the state legislature. Other jurisdictions have used this power to require mandatory disclosure of asset-based rating systems in real estate transactions and new home construction. NEEP HELIX states have not followed this path although they have the power to do so.

- The pathways exist to make home energy ratings a standard fact disclosed in residential real estate transactions. However, the pathways differ from state to state and there is no single method available for inserting home energy ratings into real estate transactions. Every state requires the seller to disclose material facts or defects to the buyer or prospective buyer. Some states legislated the content and structure of the disclosure forms while other states rely upon voluntary disclosure forms.
- The key to unlocking enhanced rates of disclosure appears to be educating consumers so that home energy ratings are something that will affect the valuation of the property and thus be considered a material fact.
- NEEP HELIX project states uniformly have adopted a statewide baseline of International Code Council (ICC) provisions for building energy efficiency standards. Vermont and Massachusetts have uniform stretch codes that allow alternative compliance in a particular way. The other states all allow some deviation from the base code (with New York being the most procedurally thorough), but determining what alternative to apply is up to the individual municipalities with the state itself providing little guidance.
- Two NEEP states with static stretch codes (Vermont and Massachusetts) implement it using HERS indexes as an alternative compliance measure. Also, the states that have adopted 2015 IECC (Vermont, Massachusetts and New York) have in their provisions reference to an Energy Rating Index (ERI) that is used for compliance purposes. Within the ERI scope, the most used compliance system is HERS.
- Most of the states and jurisdictions do not expressly state in their state energy code that compliance can be achieved using HERS. Instead, most of the NEEP HELIX states use a more comprehensive and reaching formulation referring to any approved energy efficiency rating system that could produce the same results. Therefore, even if HES is not expressly included as a compliance mechanism it could be easily enforced under these general provisions. What is more important is the fact that HES can be used not only at the compliance

phase but also at the enforcement phase, therefore at all stages in the building process.

III. Finance and Home Energy Ratings

- The requirements to qualify for loans/mortgages/taxes is different for each of PACE, Fannie Mae and FDH.
- PACE does not require the borrower to do a home energy assessment to qualify for the loan. However, recent guidelines adopted by the DOE reinforce the opinion that an assessment is always the recommended option. Also, PACE residential seems to be not as widespread available across states. This is important for both the use of PACE and the promotion of HES since in order to be eligible for a PACE loan, the building must be in a local jurisdiction where the state, city, or county has passed a resolution to participate in a PACE program.
- In respect to Fannie Mae and FHA loan and mortgage programs, the borrower is expected and required to do a home energy assessment in order to qualify for the loan that will be used for energy improvement.
- Under FHA EEH policy, the borrower is provided also with an incentive to buy or refinance a house with a HES score of 6 and above or is provided with funds to bring the house to a level of 6 or higher. The policy signals to lenders that they can use the HES as a proxy for expected utility costs. Also, FHA allows financing properties with existing PACE loans.
- Under HomeStyle Energy loan with Fannie Mae, the borrower is required to do home energy assessment. Also, the borrower is provided with an incentive to buy or refinance a house with a HES score of 6 and above or is provided with funds to bring the house to a level of 6 or higher. An Energy Report is not required for payoff of PACE loans, instead requires alternative documentations.
- There are several financing options that already serve as a path towards promotion of the use of home energy assessments. It would also be preferable

if PACE would enjoy a more widespread application and would introduce the home energy assessment as a mandatory requirement for obtaining a loan.

2. INTRODUCTION

In this memorandum, we will address what we consider some of the most important avenues to achieve progress and promotion of HES: (1) acquiring consent and amending contractual clauses; (2) legislative and regulatory reform; (3) financing and home energy ratings.

3. PROMOTION OPTIONS

3.1 Addressing data privacy concerns by Consent and Contractual Amendments

In obtaining consent and amending contracts the following timeline and types of progress in HES implementation and application should be taken into consideration:

- Customers that already have a HES and have implemented it (the avenue here is looking at the contracts in place and ***obtaining consent*** after the fact)
- Customers that have a HES and are in the process of implementing it (although the score is done, ***obtaining consent*** and contacting the homeowner should be explored through the implementation of the recommendations)
- Customers that will contract for a HES (***amend the contracts*** from the beginning)

In the following we will explore modalities for obtaining consent and amending the contracts.

3.1.1 Opt-in/Opt-out Consent for Existing Data

Obtaining permission to include existing or in-progress home energy ratings in HELIX will require contacting the homeowner to seek their consent. The two main consent mechanism options are opt-in and opt-out.

Opt-in consent requires an affirmative choice from the customer to share their data. The customer gives the data holder (such as the utility, state agency, other third-party or the DOE) the authority to share the data with another third party, affirmatively signaling their permission and agreement with the consent clause. Customers who do not respond to the opt-in consent request may have to be re-contacted using a different consent mechanism, e.g., a letter included with a monthly statement.

Opt-out consent creates a default setting in which all customers agree to share their data unless they choose to not participate in the data sharing program. If the customer does not

object, then their information, which is held by a utility, state agency, third-party or DOE, will be shared according to the terms written in the consent clause.

Consent will be given to the entity holding the data. Obtaining customer consent is a multi-step process for addressing the data access, data privacy, data management, and liability concerns of each party. An opt-in approach will likely result in lower participation rates, but data-holding entities may prefer the higher level of transparency associated with the opt-in approach.

Regardless of the communication mechanism, several particulars will need to be included in the correspondence:

- Clearly identify the entities sharing and receiving the data.
- Include liability release for the data sharing entity.
- Disclose why the data is being collected:
 - To auto-populate MLS listings; and
 - To establish a basis for valuation of the customer's residence.
- Explain how the data will be collected and turned over.
- Explain any data protection protocols that will be used to manage access to the data and protect the data from unauthorized usage.¹

3.1.2 Contractual Amendments

Contractual amendments will be necessary to gain consistent access to future sources of data and to reduce barriers to moving data into HELIX. Contractual amendments can happen in two ways: by changing the language in or inserting new clauses (opt-in/opt-out) in the contracts between the parties that contain reference to data access and privacy.

Clauses will utilize either opt-in or opt-out language, as discussed in the strategy above. The consent clause must provide an explicit description of what the data will be used for and how its use will be restricted to protect customer privacy. Clauses should clarify that

¹ LBNL – PV Autopop Roadmap, p.56

the goal is to form the HELIX database and share data with the MLS or additional data syndicators like real estate portals.

The HES assessment process offers multiple potential data collection points as the customer interacts with their utility and other third parties. Potential points of contact include:

- DOE Partnership Agreement concluded with the state Partners
- Partnership Implementation Plan submitted by the Partner to DOE
- Amending the Partners Code of Ethics and/or Standards of Practice and/or Client Bill of Rights and/or Rating Program policies and Procedures. A document that Assessors must comply with.
- The contracts (if any) concluded between the Assessors and the Customers for the purposes of offering the HES
-

Each point of contact represents an opportunity to insert a clause that will facilitate the collection and sharing of the HES data. Each point of contact should be assessed for its ability to deliver accurate and complete data sets. What is of greater importance is to address all the point of contact, because each step of offering the HES assessment has its own contractual and data privacy clauses.

Sample clauses are provided and could be altered for specific use by legal counsel:

*“The customer hereby consents to allow the collection and storage of the following specific data fields, namely **[THE DATA FIELDS TO BE INSERTED]** by its contractor **[TO BE INSTERTED THE FUNCTION OF THE RESPECTIVE CONTRACTOR, WHICH WILL DEPEND ON THE CONTRACT THAT THIS CLAUSE IS INSERTED OR AMENDED]** in order to be disclosed through accepted and secure methods of data transportation, for the specific purpose of publishing it on the HELIX database, which will auto-pop the local Multiple Listing Service (MLS). The authorized real estate data syndication partners do not make and do not have any claims of ownership or of proprietary rights in the data fields disclosed to them, and will use and protect the data in accordance with existing and*

emerging best practices, national standards, and state and federal laws, privacy rules, and statutes. When the authorized real estate data syndication partners undergo a change in ownership, the contractor [TO BE INSERTED] is under no duty to notify the customer of this change in ownership, and the new owner is authorized to receive the specific data fields which will be used only for the specific purpose as agreed herein. However, the new owner receiving the data fields must notify the customer of the change in ownership. The customer acknowledges that the data fields, as listed above, will be shared on the HELIX database and used to auto-pop the respective MLSs, being shared also with authorized real estate data syndication partners. Absent express customer consent, any personally identifiable information provided by a customer to a Contractor [TO BE INSERTED] during and as a result of assessing the energy efficiency of its home by way of a home energy rating or labeling process, except as otherwise provided by law, is subject to a reasonable expectation by the customer that the information will be kept private. The customer does not authorize the data to be sold to or used for direct marketing purposes.”

3.1.3 Consent Mechanisms for Specific Scoring Systems

This section explores four other rating systems – HERS, ENERGY STAR, LEED, and Passive House - and identifies the presence or absence of existing contractual clauses that will require amendment to obtain customer consent. This section builds on the information compiled in the Task 4.1 Memorandum.

3.1.3.1 HERS

For HERS, it is the contractual relationships between the parties that establishes the privacy policies and disclosure requirements.² Accredited Home Energy Survey Providers must abide by the Rating and Home Energy Survey Code of Ethics³ which governs the disclosure of customer rating information and prevents disclosure to third-

² Additional information on this topic can be found in Section 5.2 of the Task 4.1 Memo.

³ <http://www.resnet.us/professional/standards/ethics>

parties without the customer's consent. The Code of Ethics states: *"Raters, Home Energy Survey Professionals or a rating organization shall not disclose information concerning the rating or home energy survey for a specific home to parties other than the client or the client's agent without the written permission of the client or the client's agent except to report to the Rating or Home Energy Survey Provider for the purposes of registration, certification or quality assurance."*⁴

This contractual agreement does not prevent disclosure of the HERS index, however it does add the extra step of obtaining consent from past and future HERS recipients. Based upon the similarities between HES and HERS ethics standards, the same type of consent mechanism employed for existing HES rated homes will work for existing HERS rated homes.

3.1.3.2 ENERGY STAR Certified Homes

Obtaining consent from single-family ENERGY STAR Certified Homes should follow the same path as homes with a HES or a HERS index. ENERGY STAR program Raters uses RESNET HERS software and produce a HERS Index value.⁵ To qualify as a Rater in the ENERGY STAR program, an individual must be: a) a certified Home Energy Rater, Rating Field Inspector, or an equivalent designation as determined by a Verification Oversight Organization such as RESNET; and b) have attended and successfully completed an EPA-recognized training class. Since Home Energy Raters seeking to participate in the ENERGY STAR Certified Homes Program must be certified RESNET,⁶ it is logical to extend to the fact that they must also abide by the *Rating and Home Energy Survey Code of Ethics*.⁷ As discussed above, RESNET trained individuals agree to not disclose customer information without obtaining customer consent.

⁴ <http://www.resnet.us/professional/standards/ethics>

⁵ https://www.energystar.gov/ia/partners/bldrs_lenders_raters/downloads/ES%20NPR%20v84%202015-12-09_clean_508.pdf?59ec-c54c

⁶ https://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_rater_step1

⁷ <http://www.resnet.us/professional/standards/ethics>

3.1.3.3 LEED

Disclosing existing or future LEED ratings will not require obtaining customer consent as the residential home LEED ratings are, by default, considered “public” projects.⁸ The U.S. Green Building Council, the LEED rating body, therefore includes residential LEED-certified homes in its public LEED project directory which is an open access, searchable directory.⁹ Publicly available data elements may include project name, physical address, with link to Google map, date of registration, date of certification, certification level, total points earned, project scorecard, ACP (Alternative Compliance Path) selection, rating system and version, builder name, builder type, builder organization, gross square footage, total property area, and project type.¹⁰ Project owners can opt out of the public disclosure LEED project directory by signifying a desire to be considered as a “private project” at the time of registration. Private projects are not authorized to utilize LEED certification logos.¹¹

USGBC’s Terms of Use, posted on its website, details its policy on disclosing information submitted to the organization. The policy states that *“[t]he submission of such information to Us shall in no way prevent the purchase, manufacture or use of similar products, services, plans and ideas by Us for any purpose whatever and We shall be free to reproduce, use, disclose and distribute the information to others without restriction.”*¹² USGBC reserves the right to use project data for other purposes including the creation of case studies, media materials, and other features.¹³

The USGBC privacy policy facilitates disclosure of residential home certification information but it retains protections that will need to be addressed. All site content is deemed to be protected by applicable copyright and other intellectual property and

⁸ <http://www.usgbc.org/cert-guide/homes>

⁹ <http://www.usgbc.org/projects>

¹⁰ <http://www.usgbc.org/cert-guide/homes>

¹¹ <http://www.usgbc.org/cert-guide/homes>

¹² <http://www.usgbc.org/terms>

¹³ <http://www.usgbc.org/cert-guide/homes>

proprietary laws. The content is owned by USGBC and cannot be used without their express written consent. The term “use” includes reproducing, displaying, distributing, redistributing, republicizing, and retransmitting.¹⁴ USGBC does grant a limited, royalty-free, nonexclusive, revocable license to individuals or entities seeking to use, reproduce, and/or display any portion of the rating system appearing on the website so long as permission, authorship and copyright are properly attributed to the USGBC. The boundaries of the limited license are unclear and it would be prudent to contact the USGBC and secure their approval for any use of the LEED rating system information.

3.1.3.4 Passive House

The Passive House public registry provides a list of single-family homes that have completed the Passive House certification process. The Passive House website does not provide the same external documents as the LEED website so there is uncertainty over how information is accumulated and managed and whether there is an active consent mechanism already built into the certification process.¹⁵ Depending upon PHIUS’ existing disclosure policies, or the absence of disclosure policies, obtaining consent might occur at the organizational level or it might require securing individual homeowner consent. Obtaining organizational consent would follow the LEED example while obtaining individual consent would follow the models developed for HES and HERS.

3.1.3.5 Analysis

There is a division amongst the identified rating systems over which systems will require additional consent mechanisms to be inserted into the standard assessor-homeowner contract. The most popular rating systems, HERS and ENERGY STAR Certified Homes, share the same base RESNET program. Certified RESNET assessors are bound by a

¹⁴ <http://www.usgbc.org/terms>

¹⁵ VLS reached out to PHIUS with questions about the public nature of the registry and disclosure policies and is awaiting a response.

Code of Ethics which prevents unauthorized disclosure of the information gathered during the assessment process. The LEED and Passive House rating systems rely upon the public nature of their databases to promote their products thus they have included consent mechanisms within the contracts with their customers. Obtaining consent from homes receiving either a HERS or ENERGY STAR Certified Homes assessment will follow a similar path to that of HES. Developing a strategy for re-contacting homes with existing ratings and inserting a clause into one or more of the contractual arrangements will allow for the collection of data gathered from future assessments.

3.2 Legislative and Regulatory Reform

3.2.1 Municipal Energy Disclosure Programs

This section examines the types of mandatory energy disclosure laws, regulations, and ordinances that have been implemented at the municipal level and the legal instruments used to implement them. The goal is to identify municipalities that are leading the efforts to increase energy disclosure and to identify key characteristics used to promote energy disclosure laws and policies.

Nationally, over a dozen cities and states have adopted energy disclosure policies for homes—and there’s a big opportunity for more cities to follow their lead. Residential policies implemented so far require the disclosure of one of two types of energy assessment: an asset rating indicating a building’s energy performance as it was constructed, as HES, or an operational rating detailing building energy consumption from past use, through benchmarking or the disclosure of utility bills or the energy efficiency characteristics of a building.¹⁶ As will be demonstrated below, the most popular option is energy consumption benchmarking programs.¹⁷

¹⁶ <http://aceee.org/blog/2014/06/tracking-homes-energy-fitness>

¹⁷ Energy disclosure is the process of using energy benchmarking to report certain energy metrics and make them publicly available. Energy disclosure laws that refer to energy benchmarking are referring to a process of collecting and analyzing data where utility data is used to indicate a building’s baseline energy performance and compare that performance to other buildings.

3.2.1.1 Municipal Disclosure Laws

Energy disclosure is a tool that helps to promote energy efficiency improvements across the buildings market. Some municipalities have enacted energy disclosure legislation.¹⁸ Besides the Cities of Boston and New York, municipalities in NEEP HELIX states are lagging behind municipalities outside of NEEP HELIX states when it comes to comprehensive energy disclosure legislation. Chicago, IL; Minneapolis, MN; San Francisco, CA; Seattle, WA; and the District of Columbia have taken strong action on benchmarking energy disclosures for multi-unit residential buildings. These local governments are working with other key stakeholders to put in place systems that not only provide useful information at time of sale, but are viable in terms of implementation.¹⁹

3.2.1.1.1 Municipalities in NEEP HELIX states

In Massachusetts, the City of Boston enacted the Building Energy Reporting and Disclosure Ordinance (BERDO) in 2013. Under BERDO, large- and medium-sized buildings are required to report their annual energy use.²⁰ BERDO primarily requires disclosure of operational rating information, but appears to require supplemental disclosure of asset rating information in the following language: “[non-city buildings] shall accurately report to the Commission *the previous calendar year’s energy and water use of each building and other building characteristics necessary to evaluate absolute and relative energy use intensity.*”²¹ The City of Boston sees BERDO as a key component in its goal to reduce the city’s greenhouse gas emissions 25% by 2020 under

¹⁸ *FM Issue: Energy Disclosure*, Mar. 30, 2015, <http://facilityexecutive.com/2015/03/energy-disclosure/>.

¹⁹ ACEEE, *Scaling Up Energy Ratings, Labels, and Scores: Latest Trends to Promote Widespread Adoption*, 2016, P.11-12

²⁰ *Building Energy Reporting and Disclosure Ordinance*, <http://www.cityofboston.gov/eeos/reporting/>.

²¹ *An Ordinance Amending the Air Pollution Control Commission Ordinance in Relation to Reporting and Disclosing the Energy and Water Efficiency of Buildings* § 7-2.2(d), May 8, 2013, http://www.cityofboston.gov/images_documents/Signed%20Ordinance_tcm3-38217.pdf (emphasis added).

its Climate Action Plan.²² Accordingly, it appears that BERDO was streamlined by the City of Boston; however, the ordinance cites authority from “Article 89 of the Massachusetts Constitution, M.G.L. c.111, [and] s.31C.”²³

In New York State, the City of New York has one of the most comprehensive energy disclosure regimes in the country. New York’s Local Law 84 requires owners of large buildings to benchmark their energy and water consumption.²⁴ Thus, the City of New York approaches disclosure from an operational rating perspective. Building data is entered annually in the U.S. Environmental Protection Agency’s Energy Star Portfolio Manager software.²⁵

3.2.1.1.1 Home Rule

Both Boston and New York City were exercising local government powers in states that have home rule ensconced in their constitutions.²⁶ Home rule states devolve a range of decision-making rights from the state to the local governments. In Massachusetts, Article 89 of the Constitution grants the people of every city and town the right of self-government in local matters. Boston used this authority and paired it with M.G.L. c. 111 s. 31C which allows for towns and cities to regulate and control atmospheric pollution.²⁷ In New York State, Article IX of the State Constitution grants extensive decision-making rights to local governments.²⁸ New York City used its existing planning authority to develop its energy benchmarking and energy disclosure laws.²⁹

²² *Building Energy Reporting and Disclosure Ordinance*, <http://www.cityofboston.gov/eeos/reporting/>.

²³ *An Ordinance Amending the Air Pollution Control Commission Ordinance in Relation to Reporting and Disclosing the Energy and Water Efficiency of Buildings § 7-2.2(a)*, May 8, 2013, http://www.cityofboston.gov/images_documents/Signed%20Ordinance_tcm3-38217.pdf.

²⁴ *LL84: Benchmarking*, 2016, <http://www.nyc.gov/html/gbee/html/plan/ll84.shtml>.

²⁵ *LL84: Benchmarking*, 2016, <http://www.nyc.gov/html/gbee/html/plan/ll84.shtml>.

²⁶ <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-powers/local-government-authority>

²⁷ <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXVI/Chapter111/Section31C>

²⁸ https://www.dos.ny.gov/lg/publications/Adopting_Local_Laws_in_New_York_State.pdf

²⁹ http://www.nyc.gov/html/planyc2030/downloads/pdf/ll84of2009_benchmarking.pdf

Each of the NEEP HELIX states is a home rule state which opens up the possibility of further local action on energy disclosure.³⁰ A local government's exercise of home rule is normally confined to a range of issues where local governments have a direct interest in advancing legislation. For example, Boston and New York exercised their authority to regulate the benchmarking of energy efficiency of large buildings. However, they have placed their regulations within a larger effort to reduce city-wide greenhouse gas emissions. Benchmarking of the operational efficiency of a building allows for efficiency gains to be measured, calculated, and aggregated together. A Home Energy Score does not provide the same level of detail nor, in its current form, does it allow for measurement and verification of greenhouse gas reductions from efficiency upgrades.

3.2.1.1.2 Benchmarking and Privacy

Privacy issues are still a key concern for the benchmarking programs. Both programs focus on building level reporting metrics, like energy usage per square foot, and not at the level of the individual tenant. Boston's program covers residential buildings and requires access to individual tenant energy usage data. To protect the privacy of individual tenants, the Boston ordinance only permits disclosure of building level usage information and forbids disclosure of individual energy usage data.³¹

3.2.1.1.2 Municipalities outside NEEP HELIX states

3.2.1.1.2.1 Benchmarking

An examination of municipalities outside of the NEEP HELIX states reveals a similar focus on benchmarking large commercial and multi-unit residential buildings. Our research identified several jurisdictions that have significant energy disclosure

³⁰ <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-powers/local-government-authority>

³¹ http://www.cityofboston.gov/images_documents/Signed%20Ordinance_tcm3-38217.pdf

measures. These municipalities include Chicago, IL; San Francisco, CA; Seattle, WA; and the District of Columbia.

Chicago, IL

In Illinois, the City of Chicago has pursued initiatives such as energy rating and disclosure for multi-unit residential buildings.³² “The Chicago Energy Use Benchmarking Ordinance requires commercial and residential buildings [over a certain square footage] to benchmark using [Energy Star] Portfolio Manager, verify the data, and make the information transparent to the city.”³³ The ordinance describes benchmarking as “to track and input a building’s energy consumption data and other relevant building information for twelve consecutive months, as required by the benchmarking tool, to quantify the building’s energy use.”³⁴ Relevant building information depends on the property’s location and the property’s type as defined by Energy Star Portfolio Manager.³⁵ For example, relevant building information for a single family home in the United States includes the property’s name, address, total gross floor area, irrigated area, year built or year planned for construction completion, occupancy, and number of buildings.³⁶ Thus, the ordinance requires disclosure of both operational and asset rating type information. The ordinance was enacted in 2013 and intended to amend the Municipal Code of Chicago.³⁷ The Illinois Energy Conservation Code incorporates the 2015 IECC and it does not appear that the City of Chicago was required to go through any State channels other than the 2015 IECC standards as

³² *Buildings Policies*, Oct., 2016, <http://database.aceee.org/city/chicago-il>.

³³ *Buildings Policies*, Oct., 2016, <http://database.aceee.org/city/chicago-il>.

³⁴ *Amendment of Title 18 of Municipal Code by Adding New Chapter 18-14 Regarding Building Energy Use Benchmarking* § 1, 18-14-101.3, June 26, 2013, <https://www.cityofchicago.org/content/dam/city/progs/env/EnergyBenchmark/BenchmarkingOrdinance11SEP2013.pdf>.

³⁵ *Portfolio Manager: What Data is Required to Benchmark Your Property?*, <https://portfoliomanager.energystar.gov/pm/dataCollectionWorksheet>

³⁶ *Portfolio Manager: What Data is Required to Benchmark Your Property?*, [https://portfoliomanager.energystar.gov/pm/dataCollectionWorksheet?dcw.data={\"country\":\"US\", \"propertyUsages\": \[{\"propertyUse\":\"SINGLE_FAMILY_HOME\", \"useType\":\"SINGLE_FAMILY_HOME\"}\]}&](https://portfoliomanager.energystar.gov/pm/dataCollectionWorksheet?dcw.data={\)

³⁷ *Amendment of Title 18 of Municipal Code by Adding New Chapter 18-14 Regarding Building Energy Use Benchmarking*, June 26, 2013, <https://www.cityofchicago.org/content/dam/city/progs/env/EnergyBenchmark/BenchmarkingOrdinance11SEP2013.pdf>.

incorporated into the Illinois Energy Conservation Code to adopt this ordinance.³⁸ The City of Chicago makes benchmarking data available to the public annually—including building-specific data after the building’s second year of reporting.³⁹ The benchmarking data is available for public download on two platforms: the City of Chicago’s Data Portal and the Chicago Building Energy Performance Map.⁴⁰ Under the ordinance, benchmarking is phased-in as follows: first-time compliance must occur by 1) June 1, 2014 for commercial and institutional buildings greater than 250,000 square feet; 2) June 1, 2015 for commercial and institutional buildings between 50,000 and 250,000 square feet and residential buildings greater than 250,000 square feet; and 3) June 1, 2016 for residential buildings between 50,000 and 250,000 square feet.⁴¹

San Francisco, CA

In California, the City of San Francisco has required commercial energy rating and disclosure.⁴² In San Francisco, residential buildings built before 1978 require a minimum set of retrofits at time-of-sale.⁴³ These retrofits are required because of the intent “to lessen the impact of rising energy costs and water usage on renters and homeowners alike.”⁴⁴ The retrofits are verified via inspection.⁴⁵ The retrofits must include insulation of “accessible attic space to a minimum value of R-19” (existing R-11 insulation is acceptable), weather-stripping on “all doors leading from heated to

³⁸ *Joint Committee on Administrative Rules: Administrative Code, Title 71: Public Buildings, Facilities, and Real Property, Chapter I: Capital Development Board, Subchapter d: Energy Codes, Part 600 Illinois Energy Conservation Code* at § 600.400 Standards for Residential Buildings, Jan. 20, 2016, <http://www.ilga.gov/commission/jcar/admincode/071/071006000D04000R.html>

³⁹ *Buildings Policies*, Oct., 2016, <http://database.aceee.org/city/chicago-il>.

⁴⁰ *Buildings Policies*, Oct., 2016, <http://database.aceee.org/city/chicago-il>.

⁴¹ *Chicago Energy Benchmarking Homepage*, 2016, <https://www.cityofchicago.org/city/en/progs/env/building-energy-benchmarking---transparency.html/>. For more information on the City of Chicago’s ordinance, please see <https://www.cityofchicago.org/content/dam/city/progs/env/EnergyBenchmark/BenchmarkingOrdinance11SEP2013.pdf>.

⁴² *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/san-francisco-ca>.

⁴³ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/san-francisco-ca>.

⁴⁴ *What You Should Know About The Residential Energy Conservation Ordinance (RECO)*, Nov., 2007, http://sfdbi.org/ftp/uploadedfiles/dbi/Key_Information/ResidentialEnergyConservationOrdinance.pdf.

⁴⁵ *What You Should Know About The Residential Energy Conservation Ordinance (RECO)*, Nov., 2007, http://sfdbi.org/ftp/uploadedfiles/dbi/Key_Information/ResidentialEnergyConservationOrdinance.pdf.

unheated areas,” insulation to a minimum value of R-6 for hot water heaters, “[i]nstallation of low flow showerhead[s],” caulking and sealing of openings greater than 1/4 inch wide in building exterior,” and insulation to a minimum value of R-3 for heating and cooling ducts” along with additional water conservation measures.⁴⁶ The City’s MLS also includes energy-efficient fields.⁴⁷

Seattle, WA

In Washington State, the City of Seattle has required energy rating and disclosure laws.⁴⁸ The City of Seattle’s CB 116731 “requires multifamily buildings over 20,000 square feet to benchmark and disclose energy usage data upon request to prospective buyers, tenants, lenders, or existing tenants.”⁴⁹ Buildings under 20,000 square feet may voluntarily benchmark and disclose.⁵⁰

District of Columbia

The District of Columbia also has an energy rating and disclosure law.⁵¹ The Clean and Affordable Energy Act requires multi-family buildings greater than 50,000 square feet to benchmark and annually disclose energy usage data via Energy Star software.⁵² The District of Columbia publishes energy usage data beginning with a building’s second year of data.⁵³ Disclosure is being phased-in and was scheduled to be fully phased-in by late 2015.⁵⁴

The survey of other jurisdictions reveals the same pattern seen in NEEP HELIX states of a focus on operational ratings in large buildings. Each of the surveyed cities has

⁴⁶ *What You Should Know About The Residential Energy Conservation Ordinance (RECO)*, Nov., 2007, http://sfdbi.org/ftp/uploadedfiles/dbi/Key_Information/ResidentialEnergyConservationOrdinance.pdf.

⁴⁷ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/san-francisco-ca>.

⁴⁸ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/seattle-wa>.

⁴⁹ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/seattle-wa>.

⁵⁰ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/seattle-wa>.

⁵¹ *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/washington-dc>.

⁵² *Buildings Policies*, Dec., 2014, <http://database.aceee.org/city/washington-dc>.

⁵³ *Energy Benchmarking Disclosure*, <http://doee.dc.gov/page/energy-benchmarking-disclosure>.

⁵⁴ *Energy Benchmarking Disclosure*, <http://doee.dc.gov/page/energy-benchmarking-disclosure>. For more information on The Clean and Affordable Energy Act, please see http://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/CAEA_of_2008_B17-0492.pdf.

taken steps to introduce building energy measurement and verification systems that assess entire building energy performance not individual tenant energy usage.

3.2.1.1.2.2 Asset Rating Examples

In this section, we examine the strategies different local governments have used to use asset ratings to improve the energy efficiency of new and existing homes in their jurisdictions. The cities of Austin, TX; Boulder, CO; and Sante Fe, NM have utilized different strategies to improve the energy efficiency of their building stock.

Austin, TX

On June 1, 2009, the City of Austin’s Energy Conservation Audit and Disclosure (ECAD) Ordinance became effective.⁵⁵ The Ordinance imposes mandatory home energy rating disclosure requirements upon the sale of a residential home. An individual selling a residential home that is within the Austin Energy service area and Austin city limits, and 10 years or older must disclose a home energy audit to potential purchasers before the sale option period has closed.⁵⁶ A “residential home” includes homes with up to four living units thus covering single family homes (including townhomes), duplexes, triplexes, and fourplexes. The audit can either be conducted by a certified building performance analyst or an equivalent approved by the director of Austin Electric Utility.⁵⁷ Presently, a qualified ECAD Energy Professionals are either a certified RESNET Rater or a Building Performance Institute Building Analyst Professional.⁵⁸

Boulder, CO

⁵⁵ <http://www.austinhomesearch.com/pages/tools/how-ecad-ordinance-affects-real-estate-transactions>

⁵⁶ <http://austinenergy.com/wps/portal/ae/energy-efficiency/ecad-ordinance/ecad-for-residential-customers/ecad-for-residential-customers;>
<http://austinenergy.com/wps/wcm/connect/c8814cf7-e1a4-4d6f-8257-88445444f40c/ECADChap6-7EnergyConservation.pdf?MOD=AJPERES>

⁵⁷ <http://austinenergy.com/wps/wcm/connect/c8814cf7-e1a4-4d6f-8257-88445444f40c/ECADChap6-7EnergyConservation.pdf?MOD=AJPERES>

⁵⁸ <http://austinenergy.com/wps/portal/ae/energy-efficiency/ecad-ordinance/energy-professionals/energy-professionals>

Boulder, CO has taken a different track for improving the energy efficiency of its housing stock. In 2007, the Boulder City Council passed Ordinance 7565 mandating a minimum energy efficiency rating for new dwellings constructed in the city.⁵⁹ A dwelling may be a single-unit dwelling, a multi-unit dwelling, or a dwelling within a mixed-use development. To ensure compliance, the City implemented a Green Points Program and barred construction of new homes that did not receive a Green Points Program approval. Green Points were earned by demonstrating that the new construction exceeded the energy efficiency standards set forth in the Chapter 10-7 of the International Energy Conservation and Insulation Code.⁶⁰ The energy efficiency standards varied depending upon the size of the project but each new project must be at least 30 percent more energy efficient than the 2006 IECC minimum building requirements.⁶¹ New dwellings are evaluated using HERS and each dwelling is assigned Green Points based upon each HERS rating score below the HERS index rating.⁶² To enforce compliance, construction is not permitted without a Green Points approval.

The energy efficiency program has since been expanded to include remodels and additions.⁶³ Participation in the Green Points program is triggered when the remodel or addition exceeds a certain square footage threshold or if the energy efficiency of the entire structure is being upgraded.⁶⁴ Efficiency targets for the remodels and additions are still set using the IECC but at lower levels than new dwelling construction.⁶⁵ As with new construction, remodels and additions receive Green Points for each HERS rating score below the HERS index rating requirement.⁶⁶

⁵⁹ <https://www-static.bouldercolorado.gov/docs/ordinance-number-7565-1-201306271205.pdf>

⁶⁰ <https://www-static.bouldercolorado.gov/docs/ordinance-number-7565-1-201306271205.pdf>

⁶¹ <https://www-static.bouldercolorado.gov/docs/ordinance-number-7565-1-201306271205.pdf>

⁶² <https://www-static.bouldercolorado.gov/docs/ordinance-number-7565-1-201306271205.pdf> at 4.

⁶³ https://www-static.bouldercolorado.gov/docs/ordinance-number-7621-1-201306271207.pdf?_ga=1.50417257.1747963572.1483908450

⁶⁴ https://www-static.bouldercolorado.gov/docs/ordinance-number-7621-1-201306271207.pdf?_ga=1.50417257.1747963572.1483908450 at 4.

⁶⁵ https://www-static.bouldercolorado.gov/docs/ordinance-number-7621-1-201306271207.pdf?_ga=1.50417257.1747963572.1483908450 at 4.

⁶⁶ https://www-static.bouldercolorado.gov/docs/ordinance-number-7621-1-201306271207.pdf?_ga=1.50417257.1747963572.1483908450 at 7.

HERS ratings are integral to demonstrating compliance with the energy efficiency requirements. A newly constructed single-unit dwelling must demonstrate compliance using HERS. Applicants for permits to build an addition to or remodel a dwelling must obtain an energy audit that quantifies the annual energy performance of the building. Permit applicants can also obtain an optional HERS rating report that indicates how efficient the building is operating and where inefficiencies exist.⁶⁷

The Colorado Constitution, Article XX, allows municipal citizens to adopt a home rule charter thus giving their municipal government more control over local affairs. Boulder is one of Colorado's cities who have adopted a home rule charter thus giving city council more authority over local matters and allowing the city to implement regulations without requiring state authorization. In passing Ordinance 7565, the City Council cited the need to "protect health safety and welfare by regulating residential construction with the intent to conserve energy, water, and other natural resources."⁶⁸ Attaching a local public purpose helps protect the ordinance from being challenged as being outside of the jurisdiction of the local government. A similar strategy was employed by Boston when it implemented its energy benchmarking program.

Santa Fe County, NM

Santa Fe County requires all new home construction, except for mobile and certain types of manufactured homes and structures, to meet a minimum energy efficient requirement that is more than the State of New Mexico building code standard requirements. The standard selected by the County is a HERS rating of 70 or less⁶⁹ as certified by a qualified, independent, third-party accredited HERS rater.⁷⁰ Santa Fe Country also allows for alternative energy efficiency performance measures or methodologies to be used provided that they can demonstrate that the structure achieve an energy performance rating equal to or lower than a HERS 70 rate structure and a

⁶⁷ https://www-static.bouldercolorado.gov/docs/ordinance-number-7621-1-201306271207.pdf?_ga=1.50417257.1747963572.1483908450 at 6.

⁶⁸ <https://www-static.bouldercolorado.gov/docs/ordinance-number-7565-1-201306271205.pdf> at 1.

⁶⁹ <http://www.santafecountynm.gov/userfiles/SLDC/ClickableSLDCwithOrdinance.pdf> at 7.14.2.

⁷⁰ <http://www.santafecountynm.gov/userfiles/SLDC/ClickableSLDCwithOrdinance.pdf> at 7.14.2.2.

New Mexico licensed engineer, architect, or qualified independent building science professional performs the analyses, inspections, and certifications.⁷¹

New Mexico municipalities pursuant to NM Constitution Article X and the Municipal Charter Act can adopt home rule charters. Santa Fe County is one of the New Mexico municipalities that has pursued that path. New Mexico's home rule municipalities "may exercise all legislative power and perform all functions not expressly denied by general law or character".⁷² In exercising its power to exceed the state building code, Santa Fe County stated that the purpose and intent of the energy efficiency amendments were to conserve natural resources; minimize local, regional and global impacts on the environment from energy extraction and use; protect public health; maintain indoor air quality; and keep monthly energy expenditures manageable over the useful life of a structure.⁷³

3.2.1.1.3 Analysis

Action by municipalities is a vibrant source of current and future developments in energy efficiency disclosure law and policy. Our research demonstrates that NEEP HELIX municipalities have lagged behind other municipalities in promoting energy efficiency disclosure. Our research also shows that NEEP HELIX municipalities can do more to promote local energy efficiency because all of the NEEP HELIX states are home rule states. The disclosure case studies from Austin, TX; Boulder, CO; and Santa Fe, NM provide a couple of options for municipalities seeking to enhance the use of asset based home energy rating systems.

3.2.2 State Regulation of Real Estate Transaction disclosure laws

⁷¹ <http://www.santafecountynm.gov/userfiles/SLDC/ClickableSLDCwithOrdinance.pdf> at 7.14.2.3.

⁷² NM Const. Art. X, Section 6(D).

⁷³ <http://www.santafecountynm.gov/userfiles/SLDC/ClickableSLDCwithOrdinance.pdf> at 7.14.1.

This section presents an analysis of each state’s real estate disclosure laws. The goal is to identify opportunities to have a residential property’s energy efficiency deemed to be a material fact warranting disclosure by the seller or their agent. The opportunities may already be contained within the existing laws, e.g. mandatory disclosure forms, or the opportunities may require additional development to make energy efficiency into a material fact.

The purchase and sale of residential real estate properties is a disclosure trigger point that can be leveraged to promote the use of home energy rating systems. States closely regulate the sale of a residential property and often impose disclosure requirements on the parties. To protect the parties involved in a sale, states require key characteristics of the property to be disclosed before the sale is completed. The goal is to share material facts or defects that may affect either the buyer’s valuation of the property or the decision to purchase the property. State legislation takes two approaches to boost information sharing between the seller and the buyer. The first approach is to mandate a list of property characteristics that must be disclosed. The disclosure is normally structured as a written form shared by the seller before the sale is completed. The second approach is more flexible and requires the seller to disclose material facts. A material fact is a specific issue with the property or a component of the property that would significantly affect the value of the property.⁷⁴

Material facts may be structural or physical defects such as the foundation of the building or they may be non-structural defects like the presence of environmental contaminants. In either case, the fact or defect must be detectable and it must have an impact on the property’s value. As constituted, the definition of material facts and defects is flexible, allowing it to reflect the changing interests of potential buyers.

⁷⁴ <https://www.nachi.org/material-defects-for-home-inspectors.htm> (Material defect is also a commonly used term but for the purposes of this memo, we restrict the terminology to material fact.)

3.2.2.1 Connecticut

Connecticut has a mandatory disclosure form that must be provided before any purchase contract is signed. Connecticut's disclosure laws apply to every person offering a residential property for sales thus covering both private sales and brokered sales⁷⁵ of residential real property containing between one and four dwelling units.⁷⁶ The person must only disclose known defects; there is no obligation to seek out information that was not previously known to the seller.⁷⁷

The Department of Consumer Protection provides a Residential Property Condition Disclosure Report for use by sellers complying with the mandatory disclosure requirements.⁷⁸ The disclosure report include things like the presence of lead or radon; location in a flood plain; heating, water, and appliance problems; structural problems; and prior liens.⁷⁹ The report does not contain a specific category for energy efficiency but it does include many of the components that comprise a HES rating including heating system, insulation type, and other structural characteristics. If Connecticut wanted to integrate energy efficiency ratings into its disclosure report, it would have to statutorily amend the report to add the category of energy efficiency rating. However, amending the legislation would not address the issue of seller knowledge of the fact and the lack of obligation to conduct new research into the condition of the property.

Real estate agents and salesmen have an additional disclosure responsibility above that of private sellers. Real estate agents shall not misrepresent or conceal material facts in any transaction.⁸⁰ As stated above, there is no affirmative obligation to conduct research into the condition of the property. Misrepresentation of or failure to disclose material fact can

⁷⁵ CONN. GEN. STAT. Title 20 c. 392 § 20-327b(a) (2012). A few exceptions to the disclosure are permitted, *see* CONN. GEN. STAT. Title 20 c. 392 § 20-327b(b) (2012).

⁷⁶ CONN. GEN. STAT. Title 20 c. 392 § 20-327b(c) (2012).

⁷⁷ CONN. GEN. STAT. Title 20 c. 392 § 20-327b(d)(2)(A) (2012).

⁷⁸ http://www.ct.gov/sots/lib/sots/regulations/title_20/327b.pdf

⁷⁹ CT Real Estate Laws & Regulations (2015) <http://www.ctrealtor.com/unprotected/RELicensingLaws.pdf>.

⁸⁰ CONN. GEN. STAT. § 20-328-5a (1990).

lead to censure in the form of fines, suspension, or revocation of license.⁸¹ Connecticut law does not define “material fact” thus opening up the potential to expand the definition to include residential property energy efficiency.

3.2.2.2 Maine

Maine law requires residential real estate sellers to provide a property disclosure statement to purchasers prior to the time the purchaser makes an offer to purchase.⁸² The disclosure statement must include descriptions of the water system, insulation, heating system, waste disposal system, hazardous materials, and any known defects.⁸³ Known defects is the only category that does not have a rigid definition and is thus the only opportunity to expand the current legislation to include energy efficiency ratings. There is no affirmative duty placed upon the seller to investigate for defects which shifts the burden of requesting additional information onto the purchaser or the purchaser’s agent.

The statute does not mandate the layout of the disclosure statement however the Maine Realtors Association has produced a model disclosure form.⁸⁴ The form includes information outside of the mandated disclosures. Adding energy efficiency rating systems to this form would enable HELIX to bypass a legislative update. Furthermore, since use of the form is not required for each sale, any opposition to disclosing energy efficiency ratings could be muted.

Under Maine law, real estate agents also have a duty to the buyer. The seller’s real estate agent is required to disclose “in a timely manner to a prospective buyer all material defects pertaining to the physical condition of the property of which the seller agent knew

⁸¹ http://www.ct.gov/sots/lib/sots/regulations/title_20/327b.pdf

⁸² ME. STAT. tit. 33 § 173 (1999) <http://www.mainelegislature.org/legis/statutes/33/title33sec173.html>.

⁸³ ME. STAT. tit. 33 § 173 (1999) <http://www.mainelegislature.org/legis/statutes/33/title33sec173.html>.

⁸⁴ http://www.mainemls.com/listing-data/packets/Package_19.pdf

or, acting in a reasonable manner, should have known.”⁸⁵ Inserting energy efficiency ratings into the material to be disclosed will require an agent education program.

3.2.2.3 Massachusetts

Massachusetts has limited disclosure requirements for residential real estate transactions. As a *caveat emptor* state, Massachusetts place the burden on the purchaser to ask questions and request a home inspection. The only mandated disclosures are the presence of lead paint or a septic system.⁸⁶

General disclosure requirements and specific energy efficiency disclosures are governed through the licensing of real estate agents and home inspectors. Real estate agents must comply with Massachusetts’ consumer protection regulations. Real estate agents have an affirmative duty to disclose to the buyer or potential buyer, any fact which may have influenced them not to enter into the transaction.⁸⁷ Home inspectors must provide documentation on home energy audits to any client purchasing a single-family residential dwelling, a multiple-family residential dwelling with less than five units, or condominium unit in building with less than five units.⁸⁸ However, a home inspector is not required to determine, as part of the home inspection, the energy efficiency of the entire dwelling or any individual component of the dwelling.⁸⁹

An attempt to legislate mandatory energy inspections was not successful in 2016. The Massachusetts Association of Realtors (MAR) actively campaigned against the provision

⁸⁵ ME. STAT. tit. 32 § 13273 (1993) <http://legislature.maine.gov/statutes/32/title32sec13273.html>.

⁸⁶ MGL c. 111 § 197A (lead paint) <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXVI/Chapter111/Section197A>; 310 CMR 15.287(5) <http://www.mass.gov/eea/docs/dep/service/regulations/310cmr15.pdf> (septic system); MA Disclosure Obligations (2016) <http://www.nolo.com/legal-encyclopedia/massachusetts-home-sellers-what-if-anything-you-must-disclose-buyers.html>.

⁸⁷ MGL c. 93A § 2(2).

⁸⁸ 266 CMR 6.08.

⁸⁹ 266 CMR 6.05(2).

in State Senate’s Energy Diversity Legislation (S.2400).⁹⁰ MAR argued that the provision would harm the housing market and disproportionately punish low- and moderate-income homeowners.⁹¹ The provision did not make it into the final version of the bill.⁹²

3.2.2.4 New Hampshire

New Hampshire’s real estate disclosure laws are limited in both their content and scope. New Hampshire relies heavily upon *caveat emptor* clauses in purchase contracts and the state disclosure laws only specify that sellers provide information on the type of private water supply, on the private sewage disposal system, and on the insulation⁹³ plus information on radon gas, lead paint, and arsenic.⁹⁴

Real estate agents have additional obligations to disclose material defects with the property.⁹⁵ The agent must disclose to the prospective buyer any “material physical, regulatory, mechanical, or on-site environmental condition affecting the subject property of which the licensee has actual knowledge.”⁹⁶ However, the agent has no affirmative obligation to investigate material defects.⁹⁷

The New Hampshire Association of Realtors has created a standard form for residential property disclosure.⁹⁸ The form combines the mandatory disclosure elements with numerous non-mandated elements including information on many of the static

⁹⁰ MA Association of Realtors (2016) <https://www.marealtor.com/news/2016/08/31/realtors-defeat-mandatory-energy-labeling>.

⁹¹ <https://www.marealtor.com/news/law-and-ethics/2016/07/18/realtors-say-mandatory-energy-labeling-would-hurt-homeowners>

⁹² <http://massrealestatelawblog.com/2016/08/02/realtors-successfully-lobby-against-mandatory-home-energy-labeling-law/>

⁹³ N.H. REV. STAT. § 477:4-d (1994) <http://www.gencourt.state.nh.us/rsa/html/XLVIII/477/477-4-d.htm>.

⁹⁴ N.H. REV. STAT. § 477:4-a (2016) <http://www.gencourt.state.nh.us/rsa/html/XLVIII/477/477-4-a.htm>.

⁹⁵ NH Seller Agent Duties (2009) <http://www.gencourt.state.nh.us/rsa/html/XXX/331-A/331-A-25-b.htm>.

⁹⁶ N.H. REV. STAT. § 331-A:25-b(1)(c) (2009) <http://www.gencourt.state.nh.us/rsa/html/XXX/331-A/331-A-25-b.htm>.

⁹⁷ N.H. REV. STAT. § 331-A:25-b(1)(c) (2009) <http://www.gencourt.state.nh.us/rsa/html/XXX/331-A/331-A-25-b.htm>.

⁹⁸ http://absoluterealty.org/vow/Forms/nh/Seller_Disclosure.pdf

characteristics that comprise a HES rating. Amending this form may be the quickest and easiest method to introduce home energy ratings systems into New Hampshire's residential real estate market.

3.2.2.5 New York

In New York, sellers have two different sources of disclosure obligations. First, New York courts have carved out exemptions to the historic general rule of *caveat emptor* by creating liability for sellers who actively conceal defects from the buyer. Active concealment means that the seller had knowledge of a defect and failed to disclose it and interfered with attempts to inspect the property.⁹⁹

The second obligation comes from the 2002 Property Condition Disclosure Act. The Act mandates that sellers of residential real property, a one to four family dwelling, must disclose nearly fifty items of information to purchasers. The form seeks precise pieces of information including the presence of lead, asbestos, or radon; location in a flood plain or wetland; heating, water, and appliance defects; structural problems; and prior liens.¹⁰⁰ Question 25 asks the seller to disclose any known material defects in the property's structural system but it limits disclosure to a specific list of structural support systems like footings, beams, and girders.¹⁰¹

The fixed nature of the disclosure form limits opportunities for expansion to include home energy rating systems. Additionally, the need for legislative amendment of the document creates further barriers to change. Making home energy rating system a regular part of disclosure practices will likely require a voluntary, non-legislative approach.

⁹⁹ See *Laxer v. Edelman*, 75 A.D. 3d 584 (2d Dept. 2010).

¹⁰⁰ <https://www.dos.ny.gov/forms/licensing/1614-a.pdf>

¹⁰¹ <https://www.dos.ny.gov/forms/licensing/1614-a.pdf>

3.2.2.6 Rhode Island

Rhode Island has a mandatory disclosure requirement for sellers of real estate. Under Rhode Island law, sellers of real estate must deliver a “written disclosure to the buyer and to each agent with whom the seller knows he or she or the buyer has dealt with connection with the real estate.”¹⁰² The seller must provide a written disclosure to the purchaser as soon as practicable and the agent is barred from communicating the offer of the buyer until the buyer acknowledges receiving of a copy of the written disclosures.¹⁰³ The agent is not liable for the accuracy or thoroughness of the seller’s statement or for deficient conditions not disclosed to the agent by the seller.¹⁰⁴

Rhode Island also gave the Rhode Island real estate commission the power to approve a written disclosure form as required under the law.¹⁰⁵ Sellers may opt to use a different form than the commission-approved form provided that it substantially conforms to the requirements set for in the statute.¹⁰⁶ The content of the disclosure form is partially established under state law and must include a specified list of items such as the presence of lead, asbestos, or radon; location in a flood plain or wetland; heating, water, and appliance issues; structural defects; and prior liens.¹⁰⁷

The Rhode Island legislature also gave the real estate commission the right to add or delete requirements from the list of seller disclosure requirements when there is a determination that “health, safety, or legal needs require a change.”¹⁰⁸ Under this provision, the commission’s powers are to be liberally interpreted to allow for the

¹⁰² R.I. GEN. LAWS § 5-20.8-2(a) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹⁰³ R.I. GEN. LAWS § 5-20.8-2(a) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹⁰⁴ R.I. GEN. LAWS § 5-20.8-2(a) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹⁰⁵ R.I. GEN. LAWS § 5-20.8-2(b) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>; The Rhode Island Association of Realtors has developed a disclosure for use by its members that includes the mandated fields, <http://www.yourigloo.com/pdfs/rhodeisland/4.%20Sellers%20Disclosure%20Form%20-%203%20pages%20-%20sbor.pdf>.

¹⁰⁶ R.I. GEN. LAWS § 5-20.8-2(b) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹⁰⁷ R.I. GEN. LAWS § 5-20.8-2(b) (2009)(2)(i-xxv) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹⁰⁸ R.I. GEN. LAWS § 5-20.8-2(d) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

additional information on structural components, housing systems, and other property information.¹⁰⁹ However, any proposed change is deemed to be a rule change and therefore subject to the state's Administrative Procedures Act.¹¹⁰

Rhode Island's disclosure requirements are expansive with the potential for future expansion. The path to including home energy ratings and energy efficiency goes through the real estate commission and thus will require getting its membership to accept the value of rating systems.

3.2.2.7 Vermont

Vermont's real estate disclosure laws and regulations focus on the relationship between agent and buyer and avoid mandating specific disclosures of information on the property for sale. Sellers are required to make certain disclosures about lead¹¹¹ but otherwise they have few responsibilities to disclose characteristics about the property.

Licensed real agents are subject to further regulated disclosure requirements built around maintaining standards of professional conduct. A real estate agent can be subject to sanction if they fail to "fully disclose to a buyer all material facts within the licensee's knowledge concerning the property being sold."¹¹² To assist agents in determining what to disclose, the Vermont Administrative Code provides a non-exhaustive list of possible material facts:

1. a defect that could significantly diminish the value of the land, structures, or structural components such as the roof, wiring, plumbing, heating system, water system, or sewage disposal system
2. a limitation in the deed that could substantially impair the marketability or use of the property and thereby diminish its value

¹⁰⁹ R.I. GEN. LAWS § 5-20.8-2(d) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹¹⁰ R.I. GEN. LAWS § 5-20.8-2(d) (2009) <http://webserver.rilin.state.ri.us/Statutes/TITLE5/5-20.8/5-20.8-2.HTM>.

¹¹¹ VT Lead Law § 1767 (2007) <http://legislature.vermont.gov/statutes/section/18/038/01767>.

¹¹² 26 V.S.A. § 2296(a)(9) (1997) <http://legislature.vermont.gov/statutes/section/26/041/02296>.

3. a recognized or generally accepted hazard to the health or safety of a buyer or occupant of the property, and
4. facts the agent reasonably believes may directly impact the future use or value of the property.¹¹³

As in other states, there is no affirmative duty placed upon agents to seek out unknown information and to present it to the buyer.

There is no legislated disclosure form or statement however the Vermont Realtor's Association has created a voluntary disclosure form for use by its members. The form is to be completed by the seller and asks for information on a number of areas including mechanical, electrical, and other systems.¹¹⁴ As discussed above, voluntary disclosure forms may be an option for increasing the utilization of home energy ratings systems.

3.2.2.8 Analysis

The NEEP HELIX states have similar real estate disclosure laws that promote open and fair dealing through the sharing of information between the seller and the buyer. Although there is a similar base for each law, the states have taken several different approaches to achieving that goal and the differences are significant enough that a state-by-state effort will be required to get energy efficiency into the mandated disclosure category.

3.2.3 Building Codes

3.2.3.1 Introduction

Building codes are state laws. There is no national building code or energy code applicable across the US. Instead, states or local governments can choose to adopt one of the national model energy codes, a modified version of the model code, or their own

¹¹³ <https://www.sec.state.vt.us/media/728654/REC-Adopted-Rules-Eff-Dec-1-2015.pdf> at 15.

¹¹⁴ http://absoluterealty.org/vow/forms/vt/seller_disclosure.pdf

state-specific code. Building Energy codes are just one of many building codes, such as fire, electrical, structural, or plumbing and cover the building itself, such as the walls/floors/ceiling insulation, windows, air leakage, and duct leakage. ASHRAE and the International Codes Council (ICC) are the two private organizations in charge with developing national model building codes. ASHRAE develops the model commercial energy code, known as 90.1, while the ICC develops the International Energy Conservation Code (IECC), which contains chapters for both residential and commercial buildings.

In order to assess the energy efficiency of a building or an addition/alteration/repair to a building there are certain things that should be known such as: what energy code has been adopted, when it takes effect, how it is administered, and, most importantly, how compliance is verified. Of utmost importance for a possible integration of a home energy rating is the compliance and enforcement part of the energy code, and see whether home energy ratings can be used as a way of compliance with the code.

Thus, in the following we will further discuss the IECC as developed by the ICC and its three most recent models: 2009, 2012 and 2015. Within this discussion, we will introduce the process of adoption, modification, compliance and enforcement of the codes. Stretch codes will be also discussed, as a method of strengthening and adopting stricter building energy efficiency requirements. A stretch energy code (or a reach code) is a locally mandated code or alternative compliance path that is more aggressive than base code, to achieve greater levels of energy efficiency and higher energy savings (e.g Massachusetts, Vermont, California). An analysis of the NEEP HELIX states follows, along with a consideration of two states outside of the NEEP HELIX area that are ahead of the curve in this area. We will conclude with a short analysis on the prospects of integrating HES into the building codes, or using HES as a compliance mechanism for fulfilling the building codes requirements.

3.2.3.2 Model Building Codes and the ICC

The model building codes are “building codes that are developed and maintained by a standards organization independent of the jurisdiction responsible for enacting the building code”. The development and review of model building codes¹¹⁵ and standards used in the design, build and compliance process to construct commercial, government and residential structures is handled by the ICC. Fifty states and the District of Columbia have adopted the ICC model building codes (I-Codes) at the state or jurisdictional level.¹¹⁶ The International Energy Conservation Code (IECC) is a building code created by the ICC in 2000 and part of the I-Codes family. The IECC is the current national model energy code for the U.S, adopted for the establishment of minimum design and construction requirements for energy efficiency in both commercial and residential construction. It sets minimum requirements for energy efficiency that new buildings—as well as additions and renovations to existing buildings—must meet wherever the code

¹¹⁵ Legal authority; Model codes:

- International Building Code, International Code Council (2009), <https://law.resource.org/pub/us/code/ibr/icc.ibc.2009.pdf>
- International Existing Building Code, International Code Council (2009), <https://law.resource.org/pub/us/code/ibr/icc.iebc.2009.pdf>.
- International Residential Code, International Code Council (2009), <https://archive.org/stream/gov.law.icc.irc.2009/icc.irc.2009#page/n7/mode/2up>.
- International Energy Conservation Code, International Code Council (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.
- International Energy Conservation Code, International Code Council (2012), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2012.pdf>.
- International Energy Conservation Code, International Code Council (2015), <http://codes.iccsafe.org/app/book/toc/2015/I-Codes/2015%20IECC%20HTML/index.html>.
- The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Standards 62.1-2007 (Ventilation for Acceptable Indoor Air Quality, <http://www.mintie.com/assets/pdf/education/ASHRAE%2062.1-2007.pdf>), 62.2-2007 (Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, <http://www.eco-smart.org/productdocs/Ashrae62-2-2007.pdf>); 90.1-2007 (Energy Standard for Buildings except Low-Rise Residential Buildings, https://www.energycodes.gov/sites/default/files/becu/90.1-2007_BECU.pdf); 90.1-2013 (https://www.energycodes.gov/sites/default/files/becu/90.1-2013_Change_Highlights_BECU.pdf).
- The American Society for Testing and Materials (ASTM), E-1465-06, Standard Practice for Radon Control Options for the Design and Construction of New Low-Rise Residential Buildings, <https://www.astm.org/DATABASE.CART/HISTORICAL/E1465-06.htm>.
- NFPA 70: National Electric Code (NEC) 2014, <http://catalog.nfpa.org/NFPA-70-National-Electrical-Code-NEC-Softbound-2014-Edition-P1194.aspx>.

¹¹⁶ <http://www.iccsafe.org/about-icc/overview/about-international-code-council/>

has been adopted into law. This code contains separate provisions for commercial buildings and for low-rise residential buildings (three stories or less in height above grade).¹¹⁷ The IECC is in use or adopted in 47 states, the District of Columbia, the U.S. Virgin Islands, New York City and Puerto Rico. As a model code, the IECC is intended to be adopted in accordance with the laws and procedures of a governmental jurisdiction. When adopting a model code like the IECC, some jurisdictions amend the code in the process to reflect local practices and laws.¹¹⁸ The IECC is updated on a 3-year cycle, and the most recent version is 2015.¹¹⁹

Thus, in order to understand how a possible link or inclusion of HES into the model building codes, we have to take into consideration the legislative process of transposing these codes into state and local legislation. Therefore, the model building codes are not legal documents until they are adopted by a governmental jurisdiction and enforced by states and local governments in the form of local or state laws, following the same process as it is required to develop laws.¹²⁰

3.2.3.2.1 Adoption of the IECC

Most codes are adopted at the state level, though, in about 10 states they are adopted by cities. State adoption can occur directly by legislative action, or through regulatory agencies authorized by the legislature. The regulatory process is lengthier than legislative action, but allows greater local citizen participation. Cities adopt codes through their mayors, councils, or committees depending on their form of government. Once adopted, the code becomes law within the particular state or local jurisdiction.

Adopting an energy code by legislative action can be done by title or, more commonly, by directing either a one-time administrative action or by putting in place an ongoing

¹¹⁷ <http://www.iccsafe.org/codes-tech-support/codes/2015-i-codes/iecc/>

¹¹⁸ <http://www.iccsafe.org/codes-tech-support/codes/2015-i-codes/iecc/>

¹¹⁹ <http://www.imt.org/codes/iecc>

¹²⁰ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/05-Who_Uses_ICC_Codes.pdf

process. The process involves hearings, public commentary and revisions followed by a formal vote, ending with an approved bill being signed into law by the governor.

Adopting an energy code by regulatory action begins with the state agency releasing a public notice of its intent, including the name of the code considered. Most of the times the public is given the opportunity to review the proposed code and formally submit proposals to modify it, which are voted on by either agency staff or a committee composed of representative stakeholders selected by the agency, the legislature or the governor. The process outcomes will result to be merged into a revised code formally adopted by a vote by either the agency staff or committee vote.

In all of the above cases the adoption process provides for an effective date for the new code, “usually one to six months after the adoption date, which is the point at which newly permitted buildings need to comply with new requirements per the new code.”¹²¹

Local governments can choose to adopt a model building code as their own, thus the model codes can be either adopted without modification or adapted to a particular jurisdiction and then enforced by the adopting authority. Thus, when any jurisdiction adopts a building code it adopts a specific edition of the model code which then becomes the jurisdiction’s law. Although, the model building codes have a 3-5-year update editions, the adopted codes at the state and local level are not automatically update due to the above practice. Thus, whenever the model code is adopted the jurisdiction has two choices: either to ignore it and continue using the older version of the model code it adopted or to update its code as to comply with the last version of the model code, bringing its inspectors up to date with the changes being made to the code.

3.2.3.2.2 Compliance and Enforcement with the IECC

All stakeholders must know that an energy code is to be adopted or updated and to understand its requirements. Energy code compliance and enforcement impacts a series of actors involved throughout the building process such as: (i) architects, designers,

¹²¹ <https://energy.gov/eere/buildings/articles/how-are-building-codes-adopted>

engineers, contractors, builders, and other construction industry stakeholders “which have to design and comply with the model code on behalf of the building owner/developer”; (ii) code officials and the ones that are involved in compliance verification, which must enforce and make sure that what is built actually complies with the energy code.¹²²

Knowing what code was used when a building was constructed or when additions were made is important for the compliance test. There are however several compliance paths: (i) prescriptive paths which limit design freedom, being used primarily for residential and smaller commercial buildings; (ii) performance paths that provides more design freedom and “can lead to innovative design, but involves more complex energy simulations and tradeoffs between systems, being used primarily for larger commercial buildings that have multiple systems or varied uses and loads.”¹²³ Of importance for us is whether the use of a home energy rating can be used in this area. This will be explored in the following sections.

Enforcement is complementary to energy code compliance, and also important to attaining planned energy savings. “Enforcement strategies vary according to a state or local government's regulatory authority and available resources,” and may include, of interest for this memorandum, “inspection of the building and its systems during construction and inspection immediately prior to occupancy.”¹²⁴

3.2.3.2.3 2009 IECC

The IECC, in this 2009 edition, is considered to “meet the need for more energy-efficient building envelopes and installation of energy efficient systems through model code regulations that will result in the optimal utilization of fossil fuel and

¹²² <https://www.energycodes.gov/compliance/basics>

¹²³ https://www.energycodes.gov/sites/default/files/toolkits/pdfs/enforcement_toolkit.pdf

¹²⁴ <https://www.energycodes.gov/compliance/basics>

nondepletable resources in all communities' large and small.”¹²⁵ Its use within a governmental jurisdiction is intended to be accomplished through adoption by reference taking into account the jurisdiction’s law applicable proceedings. The IECC offers a model of adoption in the form of an ordinance, being advised that the appropriate government authority within that jurisdiction to insert the appropriate factual information in provisions requiring specific local information, such as the name of the adopting jurisdiction. Therefore, the IECC is designed and promulgated to be adopted by reference by ordinance.

Chapter 4 of the 2009 IECC is dedicated to Residential Energy Efficiency, which contains the energy-efficiency-related requirements for the design and construction of residential buildings. The definition of a residential building in this code is an R-2, R-3 or R-4 building three stories or less in height, but not model/hotels [R-1]. All other buildings, including residential buildings greater than three stories in height, are regulated by the energy conservation requirements of Chapter 5 referring to commercial buildings. The provisions within the chapter promote energy efficiency in the building envelope, the heating and cooling system and the service water heating system of the building.¹²⁶

Therefore, the Residential Code Requirements are focused on the building envelope (ceilings, walls, windows, floors, foundations, sets insulation levels, window U-factors and solar heat gain coefficients, infiltration control – caulk and seal to prevent air leaks). It refers also to ducts -seal and insulate; limited space heating, air conditioning and water heating requirements; no appliance requirements and the lighting equipment – 50% of the lamps to be high-efficacy lamps.

During the permitting process, under 2009 IECC, the builder generally must submit construction documents with information including:

¹²⁵ <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>

¹²⁶ <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>

*insulation materials and their R-values; fenestration V-factors and SHGCs; area-weighted V-factor and SHGC calculations; mechanical system design criteria; mechanical and service water heating system and equipment types, sizes and efficiencies; economizer description; equipment and systems controls; fan motor horsepower (hp) and controls; duct sealing, duct and pipe insulation and location; lighting fixture schedule with wattage and control narrative; and air sealing details.*¹²⁷

For new construction, the person completing a compliance report must report to the code official documentation, which must include: the address of the residence; building component characteristics,¹²⁸ the name of the individual checking compliance, and the software used.¹²⁹ This is also true for existing buildings with proposed repairs, alterations, or upgrades.¹³⁰ The code official may also require additional information.¹³¹ Energy Rating Indexes do not satisfy compliance requirements under the 2009 IECC.¹³²

3.2.3.2.4 2012 IECC

The 2009 IECC discussion on scope and adoption applies also to the 2012 IECC. The 2012 IECC Residential Provisions apply to detached one- and two family dwellings and multiple single family dwellings as well as Group R2, R3 and R4 buildings three stories or less in height. These scopes are based on the definition of residential buildings. Note that the IECC Commercial Provisions contain provisions for residential

¹²⁷ International Energy Conservation Code, International Code Council 2 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

¹²⁸ International Energy Conservation Code, International Code Council 34–36 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

¹²⁹ International Energy Conservation Code, International Code Council 32–33 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

¹³⁰ International Existing Building Code, International Code Council 59–69 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iebc.2009.pdf>.

¹³¹ International Energy Conservation Code, International Code Council 33 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

¹³² [Adin Maynard, 2015 IECC and the Updated Massachusetts Stretch Code, His and Hers Energy Efficiency \(Nov. 12, 2015\), http://hhefficiency.com/blog/2015/11/12/2015-iecc-and-the-updated-stretch-code.](http://hhefficiency.com/blog/2015/11/12/2015-iecc-and-the-updated-stretch-code)

buildings 4 stories or greater in height.¹³³ The compliance documentation requirement is in line with the requirements from the 2009 code.¹³⁴ Therefore, the Residential Code Requirements are focused on the building envelope (ceilings, walls, windows, floors, foundations – sets insulation and fenestration levels, and solar heat gain coefficients – infiltration control - caulk and seal to prevent air leaks, and test). It provides that the lighting equipment must be: 75% of lamps to be high-efficacy lamps or 75% of lighting fixtures to have only high-efficacy lamps.

3.2.3.2.5 2015 IECC

The 2009 and 2012 IECC discussion on scope and adoption applies also to the 2015 IECC. The IECC residential provisions apply to detached one-and two-family dwellings and multiple single-family dwellings as well as Group R2 R-3, R-4 buildings three stories or less in height. The IECC commercial provisions therefore contain provisions for residential buildings five stories or greater in height.¹³⁵

The IECC 2015 has compliance reporting requirements that exceed those in the 2009 code.¹³⁶ The 2015 requirements include a compliance statement, and a site-specific energy analysis report¹³⁷ plus the requirements found in the 2009 code.¹³⁸ In new

¹³³ <https://law.resource.org/pub/us/code/ibr/icc.iecc.2012.pdf>

¹³⁴ International Energy Conservation Code, International Code Council (2012), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2012.pdf>.

¹³⁵ <http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/EFFECTIVE%20USE%20OF%20THE%20INTERNATIONAL%20ENERGY%20CONSERVATION%20CODE%20.html>

¹³⁶ Chapter 4 [RE] Residential Energy Efficiency, in International Energy Conservation Code R405.4 (2015), [http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20\[RE\].html](http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20[RE].html).

¹³⁷ Chapter 4 [RE] Residential Energy Efficiency, in International Energy Conservation Code R405.3 (2015), [http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20\[RE\].html](http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20[RE].html)

(“Compliance based on simulated energy performance requires that a proposed residence (*proposed design*) be shown to have an annual energy cost that is less than or equal to the annual energy cost of the *standard reference design*. Energy prices shall be taken from a source *approved* by the *code official*, such as the Department of Energy, Energy Information Administration’s *State Energy Price and Expenditure Report*. *Code officials* shall be permitted to require time-of-use pricing in energy cost calculations.”) (emphasis in original); see also 2015 IECC Energy Rating Index Report, <http://thehtrc.com/wp-content/uploads/2015-iecc-energy-rating-report.jpg>.

¹³⁸ See discussion *supra* Maine.

construction, the reporting is completed both for obtainment of a permit to build¹³⁹ and to certify for occupancy after a build.¹⁴⁰ Therefore, the 2015 IECC has evolved to include a new option for residential compliance, the Energy Rating Index (ERI) path in Section R406, that is supported by home builders and energy efficiency advocates. It also increases energy efficiency, with more flexibility and easier enforcement and compliance for both builders and code officials. It allows, in the ERI path, the use of HERS ratings already used by builders of one third of all new homes to rate their new homes, and to market those new homes to consumers.¹⁴¹

The next edition of ICC codes will be issued in 2018, so the time is now to get the ICC on board with providing express compliance through home energy ratings, such as HES.

3.2.3.2.6 Stretch Codes

Stretch codes, or reach codes, “allow individual municipalities or jurisdictions to adopt more stringent energy codes within a larger, usually statewide, jurisdiction.”¹⁴² The locally mandated codes are more stringent than the base state building code, and they either offer an alternative mode of compliance or become locally mandated.¹⁴³

If a progressive municipality believes the statewide base energy code is not keeping up with advances in technology and design practices, it may choose to adopt and then implement what is usually the next generation of the energy code more rapidly than the

¹³⁹ Chapter 4 [RE] Residential Energy Efficiency, *in* International Energy Conservation Code R405.4.2.1 (2015), [http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20\[RE\].html](http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20[RE].html).

¹⁴⁰ Chapter 4 [RE] Residential Energy Efficiency, *in* International Energy Conservation Code R405.4.2.2 (2015), [http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20\[RE\].html](http://codes.iccsafe.org/app/book/content/2015-I-Codes/2015%20IECC%20HTML/Chapter%204%20[RE].html).

¹⁴¹ <http://www.iccsafe.org/codes-tech-support/codes/2015-i-codes/iecc/>

¹⁴² Richard Faesy & Ian Finlayson, Accelerating Energy Efficiency in the New Construction Market with Stretch Codes, ACEEE 8-80 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000256.pdf>.

¹⁴³ Richard Faesy & Ian Finlayson, Accelerating Energy Efficiency in the New Construction Market with Stretch Codes, ACEEE 8-80 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000256.pdf>; Stretch Codes, New Buildings Institute, http://newbuildings.org/code_policy/utility-programs-stretch-codes/stretch-codes/.

base code can adapt, thus accelerating market acceptance and adoption of more stringent energy efficiency codes.¹⁴⁴

Stretch codes have taken many forms including: the ENERGY STAR Homes voluntary program standard, a HERS energy rating at a level 10-15% more stringent than the base code, the New Buildings Institute “Core Energy Code” standards, or green building elements along with the energy provisions.¹⁴⁵ Often these programs work in tandem with utility incentive programs allowing for utility energy efficiency programs, utility incentives, and jurisdictional stretch code programs to be aligned.¹⁴⁶

3.2.3.3 NEEP HELIX States Analysis of applicable Building Energy Codes

The decision to implement the building codes is left up to the states which produces a situation where the applicable code version can vary between states. Further, states can modify the codes as they see fit. Therefore, all seven HELIX states have adopted a version of IECC with some amendments.¹⁴⁷ Some states have even introduced stretch

¹⁴⁴ Richard Faesy & Ian Finlayson, Accelerating Energy Efficiency in the New Construction Market with Stretch Codes, ACEEE 8-80 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000256.pdf>; Stretch Codes, New Buildings Institute, http://newbuildings.org/code_policy/utility-programs-stretch-codes/stretch-codes/.

¹⁴⁵ Richard Faesy & Ian Finlayson, Accelerating Energy Efficiency in the New Construction Market with Stretch Codes, ACEEE 8-80 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000256.pdf>.

¹⁴⁶ Richard Faesy & Ian Finlayson, Accelerating Energy Efficiency in the New Construction Market with Stretch Codes, ACEEE 8-80 (2012), <http://aceee.org/files/proceedings/2012/data/papers/0193-000256.pdf>; Stretch Codes, New Buildings Institute, http://newbuildings.org/code_policy/utility-programs-stretch-codes/stretch-codes/.

¹⁴⁷ Maine:

- Maine Uniform Building and Energy Code (MUBEC), Department of Public Safety, <http://www.maine.gov/dps/bbcs/Chapters%201-6/MUBEC%20Chap%201%20Jan%202015.doc>.
- 32 M.R.S. § 1153-A, <http://www.mainelegislature.org/legis/statutes/32/title32sec1153-A.html>.
- 32 M.R.S. § 3403-B, <http://www.mainelegislature.org/legis/statutes/32/title32sec3403-B.html>.
- 32 M.R.S. § 2353, <http://mainelegislature.org/legis/statutes/22/title22sec2353.html>.
- 25 M.R.S. §§ 2452 and 2465, <http://legislature.maine.gov/statutes/25/title25ch317sec0.html>.

New Hampshire:

- State Building Code Review Board, NH State Building Code, Department of Safety, <https://www.nh.gov/safety/boardsandcommissions/bldgcode/nhstatebldgcode.html>.
- Vermont
- Planning and Energy Resource division, Vermont Residential Building and Energy Code Handbook, Public Service Department (Mar. 1, 2015), http://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/RBES/2015_VT_Energy_Code_Handbook_V4.1.pdf.

Massachusetts:

codes to enhance energy efficiency measures. There is always room for improvement, especially in states who have adopted older version of ICC codes, and the stretch code models of Oregon and California provide some flexibility in the approaches that exist in some partner states.

3.2.3.3.1 Connecticut

Connecticut uses the 2012 IECC¹⁴⁸ with some amendments.¹⁴⁹ There are not currently any stretch codes in force as the statewide base code is mandatory.¹⁵⁰ Disclosure requirements and residential distinctions are discussed under the ICC base code.

The current state building code is the 2016 Connecticut State Building Code (CSBC),¹⁵¹ which is based on the ICC's widely adopted 2012 international codes and references

-
- Proposed 9th Edition of 780 CMR (Base Volume & Special Regulations), Board of Building Regulations and Standards (2016), <http://www.mass.gov/eopss/docs/dps/buildingcode/inf4/bbrs2016-01-15-basecodepublic-comment.pdf>.

Rhode Island:

- Gina M. Raimondo, Governor, Executive Order 15-17 (Dec. 8, 2015), <http://www.governor.ri.gov/documents/orders/ExecOrder15-17.pdf>.
- Connecticut
- Public Act No. 09-192, An Act Concerning Green Building Standards and Energy Efficiency Requirements for Commercial and Residential Buildings (2009), <https://www.cga.ct.gov/2009/ACT/PA/2009PA-00192-R00HB-06284-PA.htm>.
- Notice of Intent to Adopt the 2016 Connecticut State Building Code, Dep't Admin. Serv., <http://www.ct.gov/dcs/cwp/view.asp?a=4447&q=523368>.
- Division of Construction Services, 2016 Connecticut State Building Code, Dep't Admin. Serv. (June 21, 2016), http://www.ct.gov/dcs/lib/dcs/2016_ct_state_building_code.pdf#page=111.

New York:

- Division of Code Enforcement & Administration, BSC Laws and Regulations, Department of State, https://www.dos.ny.gov/dcea/laws_regs.html.

¹⁴⁸ <http://www.iccsafe.org/about-icc/government-relations/map/connecticut/>

¹⁴⁹ Residential Codes, ACEEE (Sept. 2016), <http://database.aceee.org/state/residential-codes>; Connecticut, ACEEE (Sept. 2016), <http://database.aceee.org/state/connecticut>; Building Energy Codes Program, Connecticut, U.S. Dep't Energy, <https://www.energycodes.gov/adoption/states/connecticut>.

With respect to energy efficiency, these amendments affected both commercial and residential code. Melody A. Currey, *2016 Connecticut State Building Code*, DEP'T OF ADMIN. SERV. 109–14 (June 21, 2016), http://www.ct.gov/dcs/lib/dcs/2016_ct_state_building_code.pdf. The commercial efficiency changes applied only to duct sealing and light pollution. *Id.* at 109. Residential efficiency measures are amended as to U-factors, provisions for fireplaces, envelope testing, duct insulation, and sealing. *Id.* at 112–14.

¹⁵⁰ Building Energy Codes Program, Connecticut, U.S. Dep't Energy, <https://www.energycodes.gov/adoption/states/connecticut>.

¹⁵¹ http://www.ct.gov/dcs/lib/dcs/office_of_state_building_inspector_files/2016_connecticut_state_building_code.pdf

f

the ICC A117.1-2009 standard for accessibility. The CSBC is effective for projects where permit applications are made on or after October 1, 2016. The Codes and Standards Committee is responsible for reviewing and recommending which codes are adopted.¹⁵² Any town, city, municipality, or interested person may propose amendments to the state building code. Once approved, the amendments become part of the state building code and are applied statewide. The state building inspector enforces compliance for state-owned buildings and local code officials enforce compliance for all other buildings. Compliance “is determined through construction documents submitted to the local building official showing detailed building data, features, and equipment systems governed under the code.”¹⁵³

Compliance with the CSBS can be achieved also by: *“R102.1.1 Above code programs. The State Building Inspector and the Codes and Standards Committee may deem a national, state or local energy efficiency program to exceed the energy efficiency required by this code. Such energy efficiency program may include, but not be limited to, the Leadership in Energy and Environmental Design Rating System, the Green Globes USA design program, as established by the Green Building Initiative, the National Green Building Standard, as established by the National Association of Home Builders, or an equivalent rating system approved in accordance with section 29-256a of the Connecticut General Statutes. Buildings approved in writing by such an energy efficiency program shall be considered in compliance with this code. The requirements identified as “mandatory” in Chapter 4 of this code, as applicable, shall be met.”*¹⁵⁴

3.2.3.3.2 Maine

¹⁵² http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

¹⁵³ <https://www.energycodes.gov/adoption/states/connecticut>

¹⁵⁴ http://www.ct.gov/dcs/lib/dcs/office_of_state_building_inspector_files/2016_connecticut_state_building_code.pdf

Maine enforces the 2009 ICC codes in 80 of its 533 municipalities (those over a population of 4,000)¹⁵⁵ which covers roughly 63% of Maine’s population.¹⁵⁶ As of September 28, 2011, municipalities over 4,000 in population were required to enforce the new code if they had a building code in place by August 2008. Municipalities under 4,000 are not required to enforce it unless they wish to do so and they can elect to enforce the Uniform Maine Building Code, the Uniform Maine Building and Energy Code, both, or neither.¹⁵⁷ Maine does not have a stretch code provision.¹⁵⁸ The Technical Codes and Standards Board (MUBEC) are currently working on the adoption of the 2015 IECC (commercial structures only),¹⁵⁹ while the 2009 IECC will remain in place for the Residential structures only.¹⁶⁰ However, within the 2009 IECC, there is a provision that allows “[t]he code official or other authority having jurisdiction” to allow alternative compliance by finding that the project under review has complied with an energy efficiency program that the code official has deemed to exceed the requirements of the IECC.¹⁶¹

The Department of Economic and Community Development (DECD) may adopt rules to define terms used in the legislation and to clarify the intent of the energy code. In

¹⁵⁵ Public Law, Chapter 699, 123rd Legislature, Second Regular Session, <http://www.mainelegislature.org/ros/LOM/LOM123rd/123S1/pdf/PUBLIC699.pdf>; Bureau of Building Codes and Standards, May 2015—Faq About The Maine Uniform Building Code And Energy Code Adoption, Me. Dep’t of Public Safety, <http://www.maine.gov/dps/bbcs/documents/FAQ3.doc>; Building Energy Codes Program, Maine, U.S. Dep’t of Energy, <https://www.energycodes.gov/adoption/states/maine>; Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; Maine, ACEEE (June 2016), <http://database.aceee.org/state/maine>.

¹⁵⁶ State Code Status: MAINE, Building Codes Assistance Project, <http://bcapcodes.org/code-status/state/maine/>.

¹⁵⁷ Building Energy Codes Program, Maine, U.S. Dep’t of Energy, <https://www.energycodes.gov/adoption/states/maine>; Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; Maine, ACEEE (June 2016), <http://database.aceee.org/state/maine>. All states have both an energy efficiency code and a building code. There is nothing unique or distinguished about Maine’s practice of splitting the codes. It is ICC practice.

¹⁵⁸ The 124th Maine State Legislature considered a bill to create a stretch code, *see* An Act To Clarify the Limits of the Maine Uniform Building and Energy Code, http://www.mainelegislature.org/legis/bills/bills_124th/billpdfs/HP068501.pdf, but the current code does not have the proposed amendments. 10 M.S.R.A. §§ 9722, 9724, <http://legislature.maine.gov/statutes/10/title10ch1103sec0.html>.

¹⁵⁹ Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; Maine, ACEEE (June 2016), <http://database.aceee.org/state/maine>. Maine’s 2016 legislative session ended April, 2016, and they will not convene again, outside of an emergency session, until January, 2017. See 127th Legislature, Maine.gov, http://legislature.maine.gov/house/sch_sess.htm.

¹⁶⁰ <http://www.maine.gov/dps/bbcs/>

¹⁶¹ International Energy Conservation Code, International Code Council 2 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

some instances, the legislature has granted specific authority for the DECD to adopt rules within a well-defined scope. Local municipalities may adopt either the statewide requirements or another more restrictive standard. The Energy Conservation Division of the DECD is responsible for administering and enforcing the energy requirements.

3.2.3.3.3 Vermont

Vermont has adopted the 2015 ICC Codes with some amendments.¹⁶² Vermont does expressly authorize stretch codes.¹⁶³ The base code allows compliance by achieving a HERS rating below 60, allowing up to 5 rating points discounted for renewable generation,¹⁶⁴ and the stretch code drops the maximum to 54, allowing 11 points for renewables.¹⁶⁵ The Residential Building Energy Standards (RBES) - 30 V.S.A. § 51 must be updated every three years by statute.¹⁶⁶ The RBES affects all new homes built after July 1, 1998. New RBES revisions took effect in 2015 and apply to construction commenced on and after the effective date. RBES applies to all new residential construction, including additions, alterations, renovations, and repairs. The effective dates are as follows: Residential Building Energy Standard Base - March 1, 2015;

¹⁶² Building Energy Codes Program, Vermont, U.S. Dep't of Energy, <https://www.energycodes.gov/adoption/states/Vermont>; Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Vermont, ACEEE (July 2016), <http://database.aceee.org/state/vermont>. See base code discussion below.

¹⁶³ Vermont's stretch code has been implemented. It is not in draft form. The link you posted in the comment said the code became effective last December. In this footnote I post statutes that have enacted the adoption of the stretch code. Act No. 89, An Act Relating to Reducing Energy Costs and Greenhouse Gas Emissions 23–28 (2013), http://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/June%202013%20ACT089.pdf (modifying 30 V.S.A. § 51 (formerly 21 V.S.A. 266)); 30 V.S.A. § 51, <http://legislature.vermont.gov/statutes/section/30/002/00051> (“Stretch code. The Commissioner may adopt a stretch code by rule. This stretch code shall [be consistent with state energy policy, consistent with state housing policy, evaluated relative to technical applicability and reliability, and cost effective and affordable for the consumer]. The stretch code shall be available for adoption by municipalities . . . and, on final adoption by the Commissioner, shall apply in proceedings under 10 V.S.A. chapter 151 (Act 250) in accordance with subsection (e) of this section.”); Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Vermont, ACEEE (July 2016), <http://database.aceee.org/state/vermont>.

¹⁶⁴ Vermont Residential Building Energy Standards R406 (2015), http://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/code_update/2015_VT%20RBES_Clean%20Copy%2011-4-14%20Protected.pdf.

¹⁶⁵ Vermont Residential Building Energy Standards R407 (2015), http://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/code_update/2015_VT%20RBES_Clean%20Copy%2011-4-14%20Protected.pdf.

¹⁶⁶ Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Vermont, ACEEE (July 2016), <http://database.aceee.org/state/vermont>.

Residential Building Energy Standard Stretch (applies to all Act 250 projects) - December 1, 2015.¹⁶⁷

The Vermont stretch code authorization allows the Commissioner of Public Services to promulgate stretch codes that meet the requirements of 30 V.S.A. § 51(c)(1)—“consistent with [30 V.S.A. § 202a], and consistent with duly adopted State housing policy; evaluated relative to their technical applicability and reliability; and cost-effective and affordable from the consumer's perspective.”¹⁶⁸ It is then up to individual municipalities to adopt a stretch code according to procedures outlined in 24 V.S.A. chapter 117.¹⁶⁹ While there have been no decisions interpreting 30 V.S.A. § 51, the language used describing how a stretch code applies to the granting of a land use permit suggests that if a municipality adopts a stretch code that the person seeking a permit must show substantial compliance with the stretch code for a permit to issue.¹⁷⁰

The Public Service Department (PSD) developed a statewide Energy Code Compliance Plan (and Appendixes), outlining a approach for achieving 90 percent compliance with the new Residential and Commercial Energy Codes by February 1, 2017.¹⁷¹

3.2.3.3.4 Massachusetts

The MA State Building Code ("MSBC") is promulgated by the Board of Building Regulations and Standards ("BBRS") pursuant to its authority in Chapter 143 of the Massachusetts General Laws, Sections 93 through 100. The MSBC has served as the only building code in the Commonwealth since January 1, 1975. Currently in its eighth

¹⁶⁷ http://publicservice.vermont.gov/energy_efficiency/rbes

¹⁶⁸ 30 V.S.A. § 51, <http://legislature.vermont.gov/statutes/section/30/002/00051>.

¹⁶⁹ 30 V.S.A. § 51, <http://legislature.vermont.gov/statutes/section/30/002/00051>; 24 V.S.A. chapter 117, <http://legislature.vermont.gov/statutes/fullchapter/24/117>.

¹⁷⁰ 30 V.S.A. § 51, <http://legislature.vermont.gov/statutes/section/30/002/00051> (“[C]ompliance with the [the base statewide building code] *and*, when adopted, the stretch code . . . shall serve as a presumption of compliance with 10 V.S.A. § 6086(a)(9)(F).”) (emphasis added); 10 V.S.A. § 6086, <http://legislature.vermont.gov/statutes/section/10/151/06086>.

¹⁷¹ http://publicservice.vermont.gov/energy_efficiency/energy_code_compliance

edition, the MSBC consists of a series of international model codes and any state-specific amendments adopted by the BBRS during the promulgation process. The BBRS regularly updates relevant provisions of the MSBC as new information and technology becomes available and a change is warranted. The MSBC is separated into two distinct volumes: “(i) The Residential Volume regulates all one- and two-family structures and townhouses that are three stories or less, as well as their associated accessory structures. (ii) The Base Volume regulates all structures that are not regulated by the Residential Volume.”¹⁷² Additionally, the members of the BBRS comprise the Building Code Appeals Board for purposes of deciding appeals of interpretations of the Building Code made by building officials and other similar officials.¹⁷³

Massachusetts has adopted the 2015 ICC codes as its base code for residential energy efficiency.¹⁷⁴ On July 19, 2016 Massachusetts completed its base and stretch energy code update process. Massachusetts has amended its 8th edition of the state's building codes to include the 2015 IECC / ASHRAE 2013, which will take effect on January 1, 2017. The adopted code includes state amendments to the base energy code (residential and commercial, to be published), as well as an updated stretch energy code (adopted as is). Since 2009, however, Massachusetts has had in place a stretch code that has been adopted by nearly half of the state.¹⁷⁵ Both the base and the stretch codes allow for alternative compliance that allows for compliance through a particular Energy Rating

¹⁷² <http://www.mass.gov/eopss/agencies/dps/ma-state-building-code-780-cmr.html>

¹⁷³ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

¹⁷⁴ Updates to Draft 9th Edition of the Building Code approved by BBRS on 1/12/2016, Executive Office of Public Safety & Security, <http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/buildings/updates-to-draft-9th-edition-of-the-building-code.html>; Building Energy Codes Program, Massachusetts, U.S. Dep't of Energy, <https://www.energycodes.gov/adoption/states/Massachusetts>; Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Massachusetts, ACEEE (July 2016), <http://database.aceee.org/state/massachusetts>. The new code went into effect in August, 2016. Energy and Environmental Affairs, Building Energy Codes, Mass.gov, <http://www.mass.gov/eea/energy-utilities-clean-tech/energy-efficiency/policies-regs-for-ee/building-energy-codes.html>.

¹⁷⁵ Massachusetts Base Code, Board of Building Regulations and Standard (Jan. 15, 2016), <http://www.mass.gov/eopss/docs/dps/buildingcode/inf4/bbrs2016-01-15-basecodepublic-comment.pdf>; Energy and Environmental Affairs, Building Energy Codes, Mass.gov, <http://www.mass.gov/eea/energy-utilities-clean-tech/energy-efficiency/policies-regs-for-ee/building-energy-codes.html>; Stretch Code Adoption by Community, Dep't of Energy Resources, <http://www.mass.gov/eea/docs/doer/green-communities/grant-program/stretch-code-towns-adoption-by-community-map-and-list.pdf>.

Index (ERI) score with some tradeoffs to promote renewable energy.¹⁷⁶ In the absence of a renewable source for the residence, the ERI must be 55 or less for compliance; the stretch code does not allow for any other means of compliance and makes no allowance for building size.¹⁷⁷ Adoption or rescission of the stretch code is left to the discretion of each municipality.¹⁷⁸

3.2.3.3.5 Rhode Island

Rhode Island has adopted the 2012 ICC codes for the base.¹⁷⁹ There is no current stretch code in place, but there is one in the works,¹⁸⁰ and it is targeted for implementation by the end of 2017.¹⁸¹ The compliance documentation requirement is in line with the requirements from the 2009 code.¹⁸²

¹⁷⁶ 9th Edition MA Residential Code 780 CMR 51.00, Executive Office of Public Safety & Security 1, <https://static1.squarespace.com/static/50a59650e4b00720f42cc9f5/t/5644e6bae4b06918602bc913/1447356090461/StretchCode+excerpt+from+Mass+9th+Residential+Draft+2015-06-23.pdf> (“The Energy Rating Index (ERI) shall be a numerical integer value that is based on a linear scale constructed such that the ERI reference design has an Index value of 100 and a residential building that uses no net purchased energy has an Index value of 0. Each integer value on the scale shall represent a 1 percent change in the total energy use of the rated design relative to the total energy use of the ERI reference design. The ERI shall consider all energy used in the residential building. The RESNET Home Energy Rating System (HERS) index is the approved ERI approach in Massachusetts.”); Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Massachusetts, ACEEE (July 2016), <http://database.aceee.org/state/massachusetts>.

¹⁷⁷ 9th Edition MA Residential Code 780 CMR 51.00, Executive Office of Public Safety & Security 1, <https://static1.squarespace.com/static/50a59650e4b00720f42cc9f5/t/5644e6bae4b06918602bc913/1447356090461/StretchCode+excerpt+from+Mass+9th+Residential+Draft+2015-06-23.pdf>; Adin Maynard, 2015 IECC and the Updated Massachusetts Stretch Code, His and Hers Energy Efficiency (Nov. 12, 2015), <http://hefficiency.com/blog/2015/11/12/2015-iecc-and-the-updated-stretch-code>.

¹⁷⁸ 9th Edition MA Residential Code 780 CMR 51.00, Executive Office of Public Safety & Security 1, <https://static1.squarespace.com/static/50a59650e4b00720f42cc9f5/t/5644e6bae4b06918602bc913/1447356090461/StretchCode+excerpt+from+Mass+9th+Residential+Draft+2015-06-23.pdf>

¹⁷⁹ Residential Codes, ACEEE (Sept. 2016), <http://database.aceee.org/state/residential-codes>; Rhode Island, ACEEE (Sept. 2016), <http://database.aceee.org/state/rhode-island>.

¹⁸⁰ Office of Energy Resources, State Lead by Example Initiative, RI.gov, <http://www.energy.ri.gov/leadbyexample/> (“OER is coordinating with the Energy Efficiency and Resource Management Council, National Grid, the Green Building Advisory Council, the State Building Commissioner, and the Division of Capital Asset Management and Maintenance of the Department of Administration to establish a voluntary or ‘stretch building code’ that is based on the International Green Construction Code by 2017.”).

¹⁸¹ Gina M. Raimondo, *State Agencies to Lead by Example in Energy Efficiency and Clean Energy* (Exec. Order 15-17), State of Rhode Island & Providence Plantations (Dec. 8, 2015), <http://www.governor.ri.gov/documents/orders/ExecOrder15-17.pdf>; Residential Codes, ACEEE (Sept. 2016), <http://database.aceee.org/state/residential-codes>; Rhode Island, ACEEE (Sept. 2016), <http://database.aceee.org/state/rhode-island>.

¹⁸² International Energy Conservation Code, International Code Council (2012), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2012.pdf>.

The Rhode Island Building Code is approved and administered by the Building Code Standards Committee. Under State Law, this Committee is responsible for maintaining currency of state building codes such as mechanical, plumbing, electrical, conservation, accessibility and minimum housing codes. The Committee also acts as a Board of Appeals to hear requests for variances or appeals from the State Building Code Commission or from local Boards of Appeals.¹⁸³ The state building code is updated every three years. Compliance is determined through the building permit and inspection process by local building code officials and the State Building Commission. There is no reference to compliance through a specific energy efficiency program or home energy rating.

3.2.3.3.6 New York

New York has adopted the 2015 ICC codes as a baseline.¹⁸⁴ On March 9, 2016, the New York State Fire Prevention and Building Code Council voted to adopt an update to both the commercial provisions and the residential provisions of the Energy Conservation Construction Code of New York State (ECCCNYS). The updated Residential provisions of the energy code are found in the IECC 2015 as modified by the 2016 New York State Supplement. The ECCCNYS-2016 is addressing the design and construction of energy-efficient building envelopes and the installation of energy-efficient mechanical, lighting and power systems through requirements emphasizing performance. The ECCCNYS 2016 has an effective date of October 3, 2016.¹⁸⁵

While there is not a stretch code per se, there is a similar process in New York; local governments can recommend to the State Fire Prevention and Building Code Council

¹⁸³ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

¹⁸⁴ Building Energy Codes Program, New York, U.S. Dep't Energy, <https://www.energycodes.gov/adoption/states/new-york>; Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; New York, ACEEE (July 2016), <http://database.aceee.org/state/new-york>.

¹⁸⁵ https://www.dos.ny.gov/dcea/energycode_code.html

to adopt more stringent standards for the local jurisdiction.¹⁸⁶ Essentially, rather than having a uniform stretch code that local municipalities can adopt, New York permits municipalities to recommend code amendments, provided they are more stringent than the base, for state approval; if approved, the state will enforce the locally adopted code.¹⁸⁷ Builder disclosure requirements are substantially similar to those under the IECC.¹⁸⁸

The State Fire Prevention and Building Code Council (Code Council) is the statutory body charged with making any changes to the Uniform Code or Energy Code. The Department of State is responsible for the oversight of the code enforcement community.¹⁸⁹ Compliance is determined through the normal building permit process that includes plan review and inspection by the government entity responsible for the administration and enforcement of the provisions of the Building Construction Code applicable within the municipality.¹⁹⁰

In terms of compliance the Supplement to the New York State Energy Conservation Construction Code (Revised August 2016) provides that the “Residential buildings shall meet the 2015 IECC Residential Provisions (as amended).”¹⁹¹

3.2.3.3.7 New Hampshire

¹⁸⁶ Division of Code Enforcement & Administration, State Fire Prevention and Building Code Council, N.Y. Dep’t of State, https://www.dos.ny.gov/dcea/code_council.html; Division of Code Enforcement & Administration, More Restrictive Local Standards (MRLS), N.Y. Dep’t of State, <https://www.dos.ny.gov/dcea/mrls.html>.

¹⁸⁷ Division of Code Enforcement & Administration, State Fire Prevention and Building Code Council, N.Y. Dep’t of State, https://www.dos.ny.gov/dcea/code_council.html; Division of Code Enforcement & Administration, More Restrictive Local Standards (MRLS), N.Y. Dep’t of State, <https://www.dos.ny.gov/dcea/mrls.html>.

¹⁸⁸ *Compare* NYS Building Standards and Codes, 2016 Supplement to the New York State Energy Conservation Construction Code, N.Y. Dep’t State (Aug. 2016), <http://www.dos.ny.gov/DCEA/pdf/2016%20EC%20Supp-Revised-2016-08-12-approved%20bycouncil%20V-A.pdf>; *with* International Energy Conservation Code, International Code Council 2 (2009), <https://law.resource.org/pub/us/code/ibr/icc.iecc.2009.pdf>.

¹⁸⁹ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

¹⁹⁰ <https://www.energycodes.gov/adoption/states/new-york>

¹⁹¹ <https://www.dos.ny.gov/dcea/pdf/2016%20EC%20Supp-Revised-2016-08-12-approved%20bycouncil%20V-A.pdf>

New Hampshire has adopted the 2009 ICC codes (with some amendment) and enforces them statewide; it is considering switching to the 2015 version.¹⁹² New Hampshire does not have a specific stretch code provision in place; however, it does allow individual municipalities to deviate, provided the alternative code exceeds the 2009 ICC standards.¹⁹³ These standards are the same as those discussed in Maine. The local amendments to the ICC codes do not affect builder reporting obligations.¹⁹⁴

The State Building Code Review Board (BCRB) is charged with the responsibility for reviewing and amending the New Hampshire building code. The BCRB also provides independent analysis and recommendations to the legislature on the modification of the state building codes and state fire codes to promote uniformity with all applicable laws, rules and regulations as well as the public safety and best practices for the people of New Hampshire. Another function of the BCRB is to hear appeals of any person aggrieved by a decision of the state fire marshal relative to the application and enforcement of the state building code. At the June 13, 2014 meeting of the NHBCRB the Board developed six subcommittees of Board members to begin review of the 2015 International Codes.¹⁹⁵

The local building official enforces the energy requirements. Compliance is shown by either: “1) submitting a letter of certification for the building from a New Hampshire licensed architect or engineer to the town with a copy forwarded to the PUC or 2) processing an application for certificate of compliance through the PUC or the local

¹⁹² Building Energy Codes Program, New Hampshire, U.S. Dep’t of Energy, <https://www.energycodes.gov/adoption/states/new-hampshire>; Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; New Hampshire, ACEEE (July 2016), <http://database.aceee.org/state/new-hampshire>; see also Bldg. Code Rev. Bd., *Amendments to the State Building Code Manuals Rules*, NH Dep’t of Safety (May 27, 2015), <https://www.nh.gov/safety/boardsandcommissions/bldgcode/documents/bcr300.pdf> (detailing the NH state specific amendments to the 2009 ICC codes).

¹⁹³ 30 V.S.A. § 51(c), <http://legislature.vermont.gov/statutes/section/30/002/00051> (“[T]he Commissioner shall ensure that appropriate revisions are made promptly after the issuance of updated standards for residential construction under the IECC.”); Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; New Hampshire, ACEEE (July 2016), <http://database.aceee.org/state/new-hampshire>.

¹⁹⁴ State Building Code Review Board, Part Bcr 306 Changes or Updates to The International Energy Conservation Code 2009, State of New Hampshire (Apr. 1, 2010), <https://www.nh.gov/safety/boardsandcommissions/bldgcode/documents/IECC2009NHAmendments.pdf>.

¹⁹⁵ <http://www.nh.gov/safety/boardsandcommissions/bldgcode/>

building code official.” Plans are not required unless REScheck is used; only the EC-1 form 2010 New Hampshire Residential Energy Code Application should be submitted if the applicant uses the prescriptive compliance path.¹⁹⁶

3.2.3.3.8 Oregon and California Case Studies

3.2.3.3.8.1 Oregon

Codes in Oregon are adopted as statewide codes. Buildings codes in the state are adopted as the “state program” and all local jurisdictions must enforce the state code, to the state agency’s specified level of enforcement.¹⁹⁷ Statutory authority is granted to the Oregon Building Codes Division (BDC) to adopt building codes by administrative rulemaking. The Building Codes Division adopts, amends, and interprets 11 specialty codes that make up the Oregon State Building Code. The Division administers each code through specialized code programs.¹⁹⁸ The state energy code provisions are mandatory for all heated and/or cooled residential and commercial construction, including state-owned and -operated buildings that are constructed, altered, and repaired within the state. The energy conservation requirements are a mandatory statewide minimum that cannot be modified by local government without state approval.

Oregon officially has adopted the 2012 IECC for a baseline.¹⁹⁹ However, it has also adopted the 2015 IECC with minor modifications as a reach code.²⁰⁰ Application of

¹⁹⁶ <https://www.energycodes.gov/adoption/states/new-hampshire>

¹⁹⁷ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

¹⁹⁸ <http://www.oregon.gov/bcd/codes-stand/Pages/index.aspx>

¹⁹⁹ Residential Codes, ACEEE (July 2016), <http://database.aceee.org/state/residential-codes>; Oregon, ACEEE (July 2016), <http://database.aceee.org/state/oregon>; Building Energy Codes Program, Oregon, U.S. Dep’t Energy, <https://www.energycodes.gov/adoption/states/oregon>.

²⁰⁰ 2016 Oregon Reach Code, O.R. Bldg. Codes Div. (Apr. 2016), <https://www.oregon.gov/bcd/codes-stand/Documents/reach-16reachcode.pdf>.

the reach code is subject to designer and contractor discretion, and represents an alternative means of compliance with state building code.²⁰¹

*This code shall be an optional set of construction standards and methods that are economically and technically feasible, to regulate the design and construction of buildings for the effective use of energy and the employment of renewable energy technologies. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve the effective use of energy, and to reduce the negative potential impacts of the built environment. This code is intended to be used as an alternate compliance method for Chapter 11 of the Residential Code. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes and ordinances.*²⁰²

In other words, a builder must comply with a building code in Oregon; either the base code (2012 IECC) or the reach code (2015 IECC).

Compliance can be demonstrated for residential construction either by using the prescriptive path or by completing a residential thermal performance calculation form for trade-offs of the exterior envelope requirements.²⁰³

3.2.3.3.8.2 California

California has not adopted the ICC model codes as its own codes. Instead, California, seem beyond the curb, as it exceeds the scope of the uniform ICC codes. In 2013 it adopted standards that exceeded 2012 IECC and in 2016 it adopted standards that

²⁰¹ 2016 Oregon Reach Code, O.R. Bldg. Codes Div. (Apr. 2016), <https://www.oregon.gov/bcd/codes-stand/Documents/reach-16reachcode.pdf>; Stretch Codes, New Buildings Institute, <http://newbuildings.org/code-policy/utility-programs-stretch-codes/stretch-codes/>.

²⁰² 2016 Oregon Reach Code, O.R. Bldg. Codes Div. 5–6 (Apr. 2016), <https://www.oregon.gov/bcd/codes-stand/Documents/reach-16reachcode.pdf>.

²⁰³ <https://www.energycodes.gov/adoption/states/oregon>

exceeded IECC 2015 as the statewide mandatory base.²⁰⁴ The state has two tiers of reach codes that it encourages municipalities to adopt; they are 15% and 30% above the statewide baseline, and qualify as net zero.²⁰⁵

The tier system – a voluntary portion of the CALGreen Code -- will become increasingly popular in more-progressive jurisdictions that wish to further reduce greenhouse gas emissions and promote even more-sustainable construction practices.²⁰⁶ If a reach code (either tier) is locally adopted, it becomes mandatory.²⁰⁷ The California Building Standards Commission (CBSC) is authorized by California Building Standards Law to administer the many processes related to the development, adoption, approval, publication, and implementation of California's building codes. The California Building Standards Code, Title 24 serves as the basis for the design and construction of buildings in California.

California's building codes are published in their entirety every three (3) years. Amendments to California's building standards are subject to a lengthy and transparent public participation process throughout each code adoption cycle.²⁰⁸ California Building Standards Code, "is a compilation of three (3) types of building criteria from three (3) different origins: (i) Building standards that have been adopted by state agencies without change from building standards contained in national model

²⁰⁴ Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; California, ACEEE (June 2016), <http://database.aceee.org/state/california>; Building Energy Codes Program, California, U.S. Dep't Energy, <https://www.energycodes.gov/adoption/states/california>.

²⁰⁵ Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; California, ACEEE (June 2016), <http://database.aceee.org/state/california>; CalGreen, Tier 1 Residential Measures, Cal. Housing & Community Dev. (eff. Jan. 1, 2017), <http://www.hcd.ca.gov/codes/calgreen/docs/hcdshl605b.pdf>; CalGreen, Tier 2 Residential Measures, Cal. Housing & Community Dev. (eff. Jan. 1, 2017), <http://www.hcd.ca.gov/codes/calgreen/docs/hcdshl605c.pdf>.

²⁰⁶ 2016 Report to The Legislature Status of the California Green Building Standards Code, State Department of Housing and Community Development 8 (Sept. 2016), <http://www.hcd.ca.gov/docs/calgreen/2016calgreenlegreport.pdf>.

²⁰⁷ Residential Codes, ACEEE (June 2016), <http://database.aceee.org/state/residential-codes>; California, ACEEE (June 2016), <http://database.aceee.org/state/california>; *see also* Stretch Codes, New Buildings Institute, http://newbuildings.org/code_policy/utility-programs-stretch-codes/stretch-codes/; Isaac Elneceve, Stretch-Reach Codes (Text Version), U.S. Dep't Energy, <http://energy.gov/eere/wipo/stretch-reach-codes-text-version>.

²⁰⁸ <http://www.bsc.ca.gov/Home.aspx>

codes; (ii) Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and (iii) Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns.”²⁰⁹ The Title 24 national model code standards are applicable to “all occupancies in California except for modifications adopted by state agencies and local governing bodies.”²¹⁰ Although the codes are adopted at a state level, they are enforced on a statewide base. The state codes may be amended by local building and fire jurisdiction provided that the “amendments are more stringent based on findings justified by climatic, geographic and topographical conditions of the jurisdiction.”²¹¹

²⁰⁹ <http://www.bsc.ca.gov/codes.aspx>

²¹⁰ <http://www.bsc.ca.gov/Codes.aspx>

²¹¹ http://www.iccsafe.org/gr/Documents/AdoptionToolkit/HowStatesAdopt_I-Codes.pdf

3.2.3.4 Analysis

STATE	STRETCH CODE (Y/N)	IECC BASE CODE (YEAR)	E.R.I. COMPL. (Y/N)
Maine	No ²¹²	2009 ²¹³	No
New Hampshire	No*	2009	No
Vermont	Yes	2015	Yes
Massachusetts	Yes	2015	Yes
Rhode Island	No ²¹⁴	2012	No
Connecticut	No	2009	No
New York	No ²¹⁵	2015	Yes
California	Yes	2015	Yes
Oregon	Yes ²¹⁶	2012	Stretch only

NEEP HELIX project states uniformly have adopted a statewide baseline of International Code Council (ICC) provisions for building energy efficiency standards. Vermont and Massachusetts have uniform stretch codes that allow alternative compliance in a particular way. The other states all allow some deviation from the base code (with New York being the most procedurally thorough), but determining what alternative to apply is up to the individual municipalities with the state itself providing little guidance. States like California and Oregon present interesting studies of alternative methods for how to achieve the goals of a stretch code. Oregon gives discretion to the builder, while California gives additional flexibility by offering two tiers in its reach code program. Interestingly, the two NEEP states with static stretch codes implement it using HERS indexes as an alternative

²¹² Maine and New Hampshire allow alternative compliance through more stringent means if approved by the code official.

²¹³ Maine does not enforce the code for municipalities under 4,000 unless the local government chooses to do so. The local government may enforce the Maine Building Code, Efficiency Code, or both.

²¹⁴ A stretch code is expected in 2017 for Rhode Island.

²¹⁵ New York does allow municipalities to apply for localized standards more stringent than the base code.

²¹⁶ Developers elect whether to comply by the stretch code, it is not imposed by a local government on the developer.

compliance means. Given this basis, it could be relatively simple to translate the HERS index to a HES rating.

Also, the states that have adopted 2015 IECC (Vermont, Massachusetts and New York) have in their provisions reference to an Energy Rating Index (ERI) that is used for compliance purposes. Within the ERI scope, the most used is HERS which involves analysis of the home's construction plans and at least one on-site inspection. However, most of the states and jurisdictions do not expressly state in their state energy code that compliance can be achieved also using HERS. Instead, most of the NEEP HELIX states use a more comprehensive and reaching formulation referring to any approved energy efficiency rating system that could produce the same results. Therefore, even if HES is not expressly included as a compliance mechanism it could be easily enforced under these general provisions. What is more important is the fact that HES can be used not only at the compliance phase but also at the enforcement phase, therefore at all stages in the building process. However, having expressly linked HES with the building codes could help improve and spread its use and understanding. It would be up to local governments to request such a standard, and the state to approve it.

3.3 Finance and Home Energy Ratings

3.3.1 Introduction

In this section, we will explore the financial options available for persons interested in funding their energy efficiency improvements and if home energy assessments are a requirement for a person to qualify for a loan/mortgage/tax. In this respect, we will analyze PACE program, Fannie Mae and FHA programs.

3.3.2 PACE

3.3.2.1 Introduction

Residential Property-assessed clean energy (PACE) is a low-cost, long-term innovative financing tool that allows homeowners to make affordable clean energy investments to fund energy or water efficiency and conservation improvements or renewable energy installations in their homes. PACE can pay for new heating and cooling systems, lighting improvements, solar panels, water pumps, insulation, and more for almost any property – commercial, nonprofit and residential properties. PACE pays for 100% of a project’s costs and is a secured loan that attaches to the property as a voluntary assessment on the property taxes. Thus homeowners immediately benefit from energy improvements while paying back the costs over time.

To be eligible for a PACE loan, the building must be located in a local jurisdiction where the state, city, or county has passed a resolution to participate in a PACE program. If the state does not have an active program, the interested customer may contact the PACE Initiative to find out if there is a local initiative in development in order to be put in touch with a working coalition.

The assessment runs with the property at law and successor owners are responsible for remaining balances.²¹⁷ Therefore, the loan may be transferred to the new owner upon sale of the property, or even foreclosure, the remaining PACE assessment will stay with the property, meaning the next owner is responsible for the outstanding PACE assessment and will benefit from the lower energy bills.²¹⁸ Loan terms can vary between 5 and 30 years.

Some programs also allow PACE to finance solar leases and power purchase agreements (PPAs). Also, local government, taking into account the public nature of PACE, can specify that data on the system financed through PACE will be made public for auto-population purposes, addressing data sharing opportunities upfront by obtaining consent.

²¹⁷ https://www.whitehouse.gov/assets/documents/PACE_Principles.pdf

²¹⁸ <https://energy.gov/eere/articles/pace-adds-market-value-home-energy-upgrades>

3.3.2.2 Integration with Home Energy Ratings

DOE has recently adopted revisions to the original “Guidelines for Pilot PACE Financing Programs,” initially issued on May 7, 2010, to reflect the evolving structure of the PACE market and incorporate lessons learned. The revised guidelines have been updated to focus solely on residential PACE programs and support a more rigorous approach to determining property owner eligibility. The guidelines apply “to both property owners who voluntarily opt into PACE programs, and to lenders who hold mortgages on properties with PACE assessments.”²¹⁹ For the purposes of this memorandum, the revised guidelines focus “on best practices for compatibility of PACE with energy efficiency programs and services, incorporating advancements in DOE residential energy efficiency analytical tools and resources”,²²⁰ offering as example the DOE HES and Standard Work Specifications, and step-by-step program guidance available through the Better Buildings Residential Program Solution Center.²²¹

Homeowners do not have to use labels to qualify for PACE financing, but ratings and labels can be used to identify possible energy efficiency improvements. Allowing the cost of the energy assessment to be included as an eligible cost incorporated into the PACE financing would make this practice more widespread. Thus, in order to ensure that energy improvements are real estate transactions, PACE programs should offer an energy efficiency assessments before and after PACE efficiency upgrades are completed. However, if the PACE program isn’t equipped to offer the Score, then homeowners who want to undertake a PACE assessment should be encourage to get one through a qualified assessor in the area.²²²

3.3.2.3 State-by-state Analysis

²¹⁹ https://energy.gov/sites/prod/files/2016/07/f33/best-practice-pace_0.pdf

²²⁰ https://energy.gov/sites/prod/files/2016/07/f33/best-practice-pace_0.pdf

²²¹ https://energy.gov/sites/prod/files/2016/07/f33/best-practice-pace_0.pdf

²²² https://energy.gov/sites/prod/files/2016/07/f33/best-practice-pace_0.pdf

Residential PACE is currently offered in California, Florida and Missouri.²²³ With respect to the NEEP HELIX Partner states:

- **New York** passed PACE-enabling legislation in 2009 and there is one active commercial PACE program.²²⁴
- **Vermont** passed subordinate residential PACE-enabling legislation, but there is currently no program operating.²²⁵
- **Rhode Island** passed PACE-enabling legislation in 2015 as part of a comprehensive budget bill, and in April 2016, RI C-PACE, the statewide commercial PACE program, started operating. Municipalities can join the program, which is administered by the RI Infrastructure Bank.²²⁶ For more information see H5900 Chapter 39-26.5.²²⁷
- **Connecticut** has commercial PACE programs. For more information see HB 6991 / Act no. 15-21.²²⁸
- **Massachusetts** passed PACE-enabling legislation, but there is currently no program operating.²²⁹ For more information see H.4568.²³⁰
- **New Hampshire** passed PACE-enabling legislation in 2009 for renewable and energy efficiency improvements. There is one active program — NH C-PACE, which launched in 2016 and is currently operational in Hanover, NH.²³¹ For more information see HB 205 / Ch. 121²³²
- **Maine** passed subordinate residential PACE-enabling legislation, but there is currently no program operating.²³³

²²³ <http://pacenation.us/pace-programs/>

²²⁴ <http://pacenation.us/pace-in-new-york/>

²²⁵ <http://pacenation.us/pace-programs/residential/>

²²⁶ <http://pacenation.us/pace-in-rhode-island/>

²²⁷ <http://webserver.rilin.state.ri.us/BillText/BillText15/HouseText15/H5900Aaa.pdf>

²²⁸ <https://www.cga.ct.gov/2015/act/pa/2015PA-00021-R00HB-06991-PA.htm>

²²⁹ <http://pacenation.us/pace-programs/residential/>

²³⁰ <https://malegislature.gov/Bills/189/House/H4568>

²³¹ <http://pacenation.us/pace-in-new-hampshire/>

²³² <http://www.gencourt.state.nh.us/legislation/2015/HB0205.html>

²³³ <http://pacenation.us/pace-programs/residential/>

3.3.3 Federal Housing Administration (FHA)

3.3.3.1 Introduction

FHA's Energy Efficient Mortgage program (EEM) enables family to save money on utility bills by financing energy efficient improvements with their FHA insured mortgage. The EEM program recognizes that an energy-efficient home and reduced utility expenses can permit a homeowner to pay a higher mortgage to cover the cost-effective energy improvements on top of the approved mortgage. EEM is one of many FHA programs that insure mortgage loans, encouraging lenders to make the credit available for people that would not qualify in normal conditions and also for residents of disadvantaged neighborhoods.

EEM can be used under FHA's popular Section 203(b) Mortgage Insurance for one to four family homes eligible for approximately 96.5 percent financing and also the FHA Section 203(k) Rehabilitation Mortgage Insurance program, where an Energy Package can be layered on top of the improvements to be made under this section. Also, when the home being financed meets minimum energy efficient standards, "FHA permits the borrower's qualifying ratios to be "stretched" by two percentage points above the standard limits, allowing the borrower to qualify for a higher loan amount."²³⁴ The stretch ratios permitted for an Energy Efficient Home may be used with any FHA insurance Title II program, including Energy Efficient Mortgages, and Section 203(k) Rehabilitation Mortgages. FHA's Weatherization policy "allows borrowers to finance up to \$3,500 to pay for basic weatherization items, such as thermostats and insulation."²³⁵

The energy package is the set of cost-effective improvements, which may include inter alia energy saving equipment, solar and wind technologies, that the Borrower chooses to make taking into consideration the qualified home energy assessor report.

²³⁴ https://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/eem/energy-r

²³⁵ https://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/eem/energy-r

3.3.3.2 Integration with Home Energy Ratings

The Borrower must obtain a home energy assessment, that will identify opportunities for improving the energy efficiency of the home and their cost-effectiveness. For existing homes, a qualified home energy assessment will determine whether the improvements are cost effective and in the case of new homes a qualified home energy assessment will determine which improvements exceed the IECC standards.

The assessment must be conducted by a qualified energy rater, assessor, or auditor using whole-home assessment standards, protocols and procedures. Qualified home energy raters/assessors must be trained and certified as one of the following: (i) Building Performance Institute Building Analyst Professional; (ii) Building Performance Institute Home Energy Professional Energy Auditor; (iii) Residential Energy Services Network Home Energy Rater.

A new policy, effective January 25th 2016, extends the FHA EEH (Energy Efficient Homes) historically limited to new homes – to existing homes. Under this new policy, now buyers can request from the seller through their real estate agent or have a home scored during inspection. FHA borrowers can qualify for a two percent “stretch ratio” on the debt-to-income ratio during the purchase or the refinance of the home that scores at least 6 on DOE’s 1 to 10 HES scale. If a home receives a Home Energy Score below 6, the buyer can receive funds to help bring the house up to the level of a 6 or higher.²³⁶ When buying a newly built home that meets energy code, homebuyers are in compliance with the requirements and can qualify for the EEH. Qualifying new homes for the EEH stretch ratio, “must meet or exceed the efficiency of the most rigid of either the 2006 IECC, or the prevailing state or local code.” EEH stretch ratios can be applicable to the FHA’s Title II forward mortgage products and programs, including its primary loan programs – 203 (k) and 203 (b). The qualifying ratios available through the EEH policy

²³⁶<http://www.ashireporter.org/HomeInspection/Articles/Making-More-Money-by-Providing-Home-Energy-Scores/14926> (You can read more about the FHA’s partnership with Home Energy Score program at <http://goo.gl/idTqMp.1>)

add to the FHA products that support energy efficiency, such as for example the Energy Efficient Mortgage (EEM).²³⁷

FHA announced anticipated guidelines for another initiative that will allow borrowers to use Single Family FHA financing for properties with existing PACE loans that meet certain conditions. FHA PACE Policy adopted on July 19, 2016 makes it easier for future home buyers to purchase or refinance homes using FHA financing when there is an existing PACE obligation attached to the property, meeting FHA requirements.²³⁸

3.3.4 Fannie Mae

3.3.4.1 Introduction

The Federal National Mortgage Association, known as Fannie Mae, is a US government-sponsored enterprise and, since 1968, a publicly traded company. In March of 2016, Fannie Mae launched a new HomeStyle Energy mortgage loan.²³⁹

3.3.4.2 Integration with Home Energy Ratings

Applicable at point of sale or refinancing, the HomeStyle Energy loan requires HES, HERS report, or comparable locally supported report that identifies cost effective recommendations. The HomeStyle Energy mortgage loan allows borrowers to finance up to 15% of the “as completed” appraised value for energy efficiency improvements by receiving HES and finance up to \$3,500 in weatherization or water-efficient improvements with no energy report.²⁴⁰ Borrowers can also qualify for a stretch on their debt-to-income ratios for homes that score a 6 or higher, or for making improvements to a less efficient home. The energy report must be reviewed by the lender and must: identify the recommended energy improvements and expected costs of the completed

²³⁷ <https://betterbuildingsolutioncenter.energy.gov/beat-blog/does-home-energy-score-and-fha-mortgages-new-tools-help-you-shop-and-buy-energy-efficient>

²³⁸ https://energy.gov/sites/prod/files/2016/08/f33/PACE-Aug11webinar_v2.pdf

²³⁹ https://www.fanniemae.com/content/fact_sheet/homestyle-energy-product-matrix.pdf

²⁴⁰ <https://www.fanniemae.com/content/faq/homestyle-energy-faqs.pdf>

improvements; specify the monthly energy savings to the borrower; and verify that the recommended energy improvements are cost-effective. If the cost of the energy report is paid for by the borrower, the cost may be financed as part of the mortgage by including it in the cost of the energy improvements. The cost of the energy report can be incorporated into the borrower's loan amount.

Exceptions to Energy Report Requirements are available for weatherization's and water-efficiency improvements and payoffs of PACE loans. An energy report is not required for basic weatherization and water-efficiency improvements up to \$3,500 because studies have shown that they are cost-effective energy improvements. Fannie Mae also does not require an energy report for the payoff of a PACE loan. Alternative documentation (other than an energy report) is acceptable in the following circumstances.²⁴¹

3.3.5 Analysis

The widening array of energy efficiency financing options holds great promise for complementary growth in ratings and scores. The financial instruments, such as PACE, Fannie Mae and the FHA programs can be used towards paying for energy efficiency home improvements. However, the requirements to qualify for such a loan/mortgage/tax is different for each.

While for PACE is not required for the borrower to do a home energy assessment in order to qualify for the loan, recent guidelines adopted by the DOE reinforce the opinion that an assessment is always the recommended option. Also, PACE residential seems to be not as widespread available across states. This is important for both the use of PACE and the promotion of HES due to the fact that to be eligible for a PACE loan, the building must be located in a local jurisdiction where the state, city, or county has passed a resolution to participate in a PACE program.

²⁴¹ <https://www.fanniemae.com/content/guide/selling/b5/3.3/01.html>

In respect to Fannie Mae and FHA loan and mortgage programs, the borrower is expected and required to do a home energy assessment in order to qualify for the loan that will be used for energy improvement. Under FHA EEH policy, the borrower is provided also with an incentive to buy or refinance a house with a HES score of 6 and above or is provided with funds to bring the house to a level of 6 or higher. The policy signals to lenders that they can use the HES as a proxy for expected utility costs. Also, FHA allows financing properties with existing PACE loans. Under HomeStyle Energy loan with Fannie Mae, the borrower is required to do home energy assessment. Also, the borrower is provided with an incentive to buy or refinance a house with a HES score of 6 and above or is provided with funds to bring the house to a level of 6 or higher. An Energy Report is not required for payoff of PACE loans, instead requires alternative documentations.

As we can see, there are several financing options that already serve as a path towards promotion of the use of home energy assessments. It would also be preferable if PACE would enjoy a more widespread application and would introduce the home energy assessment as a mandatory requirement for obtaining a loan.

4 Conclusion

Residential energy labeling has grown exponentially over the past five years with the help of states, utilities, cities, and real estate stakeholders across the country. It is only expected that residential rating and labeling to grow exponentially as collaboration across sectors increases, this being the key to the promotion and growth of the residential energy labeling and rating. Collaboration across sectors – to include appraisers, real estate agents, financial institutions, retailers, and many others - has been and will continue to be key to this process: “the next few years will hopefully show how states and others are conquering the scale-up barriers for residential energy labels, and how they are forging the way to educate homebuyers and homeowners about energy efficiency at every possible chance.”²⁴²

²⁴² ACEEE, Scaling Up Energy Ratings, Labels, and Scores: Latest Trends to Promote Widespread Adoption, 2016, p.11-12

Acknowledgements and Disclaimers

This material is based upon work supported by the Department of Energy through State of Vermont and Northeast Energy Efficiency Partnership.

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

The work of the Vermont Law School Institute for Energy and the Environment is intended to assist and expedite professional assessment. The IEE is an academic organization and its work does not purport to be, and is not the equivalent of, the work of a licensed professional with expertise in this area. The IEE does not provide legal services, advice, or consultation. Any legal assistance must be the subject of a separate agreement with a licensed attorney. Before making significant decisions based on this work, it would be appropriate to consider consultation with a licensed professional with expertise in this field.