Home Energy Score
A Regional Approach to Residential Energy Assessment & Disclosure

BAY AREA Regional Energy Network

STOP WASTE at home • at work • at school
AGENDA

• The Residential Sector
• Policy Options
• Home Energy Score
• BESO
• BayRENE Regional Support
• From READ to Retrofit
• Q&A
Climate Policy Context

- AB 32
- CA Energy Efficiency Strategic Plan
- AB 758
- AB 802
- Local Climate Action Plans
The Residential Sector

- CA residential sector produces 18% of total GHGs
- 9 million single-family homes in California
- 2/3 of California’s residential buildings built before 1982
Regional Policy Framework

Model ordinance & supporting tools:
• Create a consistent playing field for all stakeholders
• Reduce administrative burdens and costs for jurisdictions
• Result in more cost-effective GHG reductions than a city-by-city approach
• Maintain flexibility for cities to tailor the policy to meet their customized local needs
Local Policy Options

• Promote voluntary programs
• Mandate energy assessment and disclosure
• Require upgrades and building improvements
• Combination of the above
Voluntary Programs

Positive drivers to encourage efficiency improvements:

- Incentives, in the form of tax credits and/or rebates
- Innovative financing such as on-bill programs and Property Assessed Clean Energy (PACE) programs
Mandatory Policy

Residential Energy Conservation Ordinance (RECO)

Requires energy upgrades to existing homes

Challenges:
- Expensive to administer and enforce
- High cost of compliance for homeowners
- Political opposition from real estate community
## RECO: Prescriptive vs Performance

<table>
<thead>
<tr>
<th>Type of RECO</th>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESCRIPTIVE</td>
<td>Clear list of efficiency measures</td>
<td>Lags behind advances in technology and Energy Code.</td>
</tr>
<tr>
<td></td>
<td>Well-defined pathway for compliance</td>
<td>“One size fits all” misses opportunities for customized upgrades</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>Flexibility for customized efficiency measures</td>
<td>High cost of compliance for homeowners</td>
</tr>
<tr>
<td></td>
<td>Integrated approach aligns with whole-house incentive programs</td>
<td>Costly to track, verify, and enforce program compliance</td>
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</table>
A new generation of policy alternatives

Residential Energy Assessment and Disclosure
Residential Energy Assessment & Disclosure
READ Stakeholders

• Homeowners / sellers
• Prospective home buyers / renters
• Realtors
• Policymakers
• Building Professionals
Why READ?

- Improves energy literacy
- Empowers consumers
- Drives investment in energy upgrades
- Increases market transparency by creating a clear rating system
## Ratings: Operational vs Asset

<table>
<thead>
<tr>
<th>Type of Rating</th>
<th>BENEFIT</th>
<th>ISSUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATIONAL</td>
<td>• Measures occupant behavior</td>
<td>• Does not reflect building features</td>
</tr>
<tr>
<td></td>
<td>• Easy access to data</td>
<td></td>
</tr>
<tr>
<td>ASSET</td>
<td>• Describes building attributes</td>
<td>• Not calibrated to actual use</td>
</tr>
<tr>
<td></td>
<td>• Improves asset value</td>
<td></td>
</tr>
</tbody>
</table>
Like miles-per-gallon ratings on automobiles, or nutritional labels on food, an Asset Rating gives consumers the tools to make informed choices.
Home Energy Score: A “MPG” for Homes

Score includes

• Scale of 1 to 10
• Home Facts
• Recommendations

www.homeenergyscore.gov
Why Home Energy Score?

• Affordable, reliable, simple and action-oriented
• Standardized label to understand a home’s efficiency and compare it to similar homes.

Some things are easier to compare than others

Nice countertop

Nice attic insulation
40 Data Points Collected

- No specialized equipment needed (blower door, infrared camera, etc.)
- Significant overlap with a Home Inspection Report
- Low-cost service
  - Takes approximately 1 hour if done as a stand-alone assessment
Assessor Eligibility & Requirements

- Candidate must work under an official DOE Partner
- Hold a current DOE recognized credential:

<table>
<thead>
<tr>
<th>Organization</th>
<th>Minimum Accepted Credential</th>
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<tbody>
<tr>
<td>American Society of Home Inspectors (ASHI)</td>
<td>ASHI Inspector or Certified Inspector</td>
</tr>
<tr>
<td>Building Performance Institute (BPI)</td>
<td>Building Science Principles Certificate of Knowledge</td>
</tr>
<tr>
<td>BuildItGreen</td>
<td>Certified Green Building Professional (CGBP) or Green Point Rater (GPR)</td>
</tr>
<tr>
<td>CalCERTS</td>
<td>Rater</td>
</tr>
<tr>
<td>California Real Estate Inspection Association (CREIA)</td>
<td>Certified Home Inspector</td>
</tr>
<tr>
<td>GreenHome Institute</td>
<td>Certified Green Home Professional</td>
</tr>
<tr>
<td>International Association of Certified Home Inspectors (InterNACHI)</td>
<td>Home Energy Inspector</td>
</tr>
<tr>
<td>National Association of Home Inspectors (NAHI)</td>
<td>Certified Real Estate Inspector</td>
</tr>
<tr>
<td>National Association of the Remodeling Industry (NARI)</td>
<td>Green Certified Professional, Certified Remodeler, or Master Certified Remodeler</td>
</tr>
<tr>
<td>Residential Energy Services Network (RESNET)</td>
<td>HERS Rater</td>
</tr>
</tbody>
</table>
Home Energy Score Partners

http://www.homescoreca.org
Building Energy Saving Ordinance (BESO)

Requires Home Energy Scores for single family homes at time-of-sale

- Energy Assessment prior to sale
- Deferrals to buyers
- Exemptions
Trigger events for mandatory policy

- Point of sale
- Time of rental inspection/permit
- Building Permit for major renovation
- Date certain
Boulder City Council adopted a SmartRegts ordinance in 2010 that require all rental housing, about half of Boulder’s housing stock, to meet a basic energy efficiency standard by January 2019.
Bay Area Home Energy Score
Activity Snapshot

- 9 assessors enrolled, more in pipeline
- Mix of contractors and home inspectors
- 166 scores issued, mostly by home inspectors
- Most of the home scores occurred in Berkeley, where mandated at time-of-sale.
- Homes have also been scored in Solano and Napa Counties.
- Average score of 5
- Average cost of score $220
- Mix of add-on assessment to standard home inspection and stand-alone HES assessment
Lessons Learned

- Home Energy Scores generate leads for home upgrades
- Recommendations are key link
- More fine-tuning of national tool needed for California
- Large homes tend to score lower
- Streamlined data entry could reduce cost
- Contractors and home inspectors are interested in adding HES to their business
- Realtors are skeptical in anticipation of local mandates
## RECOMMENDED HOME ENERGY IMPROVEMENTS

<table>
<thead>
<tr>
<th>Building &amp; Customer Information</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Customer Name</td>
<td></td>
</tr>
<tr>
<td>Buyer/seller</td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
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</tbody>
</table>

| Primary Building Address | City/State/Zip |  |
|--------------------------|----------------|
| # Attached Dwelling Units | Unit #/Name (if multiple units) | Conditioned Floor Area (sq ft) | Historic Structure (Y/N) |

<table>
<thead>
<tr>
<th>Home Energy Score Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Score ID</td>
<td>Current Home Energy Score (1-10)</td>
</tr>
<tr>
<td>Assessment Date</td>
<td>Assessment Cost (excluding filing fee)</td>
</tr>
</tbody>
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**BAY AREA Regional Energy Network**

Improve your home’s efficiency with the recommended energy efficiency measures below. Projects may earn rebates ranging from $1,000 to $6,500. For free independent expert advice regarding recommendations, Energy Upgrade California® programs and financing opportunities, contact a Home Upgrade Advisor at 800-878-6008, advisor@bayren.org or visit bayareaenergyupgrade.org.

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### Recommended Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Recommendation Details</th>
<th>Recommended When</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attic Insulation</td>
<td>Insulation R-3.0 (R-3.8 in climate zones 1 &amp; 11-16)</td>
<td>Existing average R-2.11 and accessible attic exists</td>
</tr>
<tr>
<td>Wall Insulation</td>
<td>Insulate R-13</td>
<td>Existing R-0</td>
</tr>
<tr>
<td>Floor Insulation</td>
<td>Insulate R-19</td>
<td>Existing R-0 and accessible crawlspace exists</td>
</tr>
<tr>
<td>Whole Building Air Sealing</td>
<td>≤1.5% leakage reduction from vintage table defaults</td>
<td>Recommending attic insulation or homeowner experiences drafts</td>
</tr>
<tr>
<td>Duct Repair</td>
<td>Repair may include sealing, insulating, or replacement. See Additional Comments for more information.</td>
<td>Visual inspection reveals duct leakage</td>
</tr>
<tr>
<td>Central Gas Furnace</td>
<td>≥92% AFUE</td>
<td>Unit ≥15 years old and AFUE ≤80%</td>
</tr>
<tr>
<td>Central Air Conditioner</td>
<td>≥15 SEER / 12.7 EER</td>
<td>Unit ≥15 years old and SEER ≤10</td>
</tr>
<tr>
<td>Gas Storage Water Heater</td>
<td>EF ≥0.67</td>
<td>Natural gas unit ≥10 years old</td>
</tr>
<tr>
<td>Gas On-Demand Water Heater</td>
<td>EF ≥0.82</td>
<td>Customer requests tankless</td>
</tr>
<tr>
<td>Natural Gas Wall Heater or Ductless Heat Pump</td>
<td>≥70% AFUE (wall heater) ≥8.5 HSPF / ≥15 SEER (heat pump)</td>
<td>Unit ≥15 years old</td>
</tr>
<tr>
<td>Fireplace Door and/or Damper</td>
<td>Sealing fireplace</td>
<td>Not existing</td>
</tr>
<tr>
<td>Pool Pump</td>
<td>Variable speed</td>
<td>Single speed</td>
</tr>
</tbody>
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### ADDITIONAL RECOMMENDATIONS, COMMENTS, INCENTIVES, FINANCING, & SAFETY OBSERVATIONS

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2016_0112_v9
Home Energy Score + Custom Recommendations + Follow-up by Home Upgrade Advisors = Energy Upgrades
# 2016 Activities

| Policy assistance                                      | • Presentations for local governments  
|                                                      | • Model ordinance language  
|                                                      | • Coordination with CEC and DOE on technical issues  
|                                                      | • Data protocols for SEED platform  
| Workforce development                                 | • Targeted recruitment  
|                                                      | • HES assessor mentoring in 9 county Bay Area  
|                                                      | • Quality assurance on scores and recommendations  
|                                                      | • Regional rebates for Assessors  
| Home Upgrade Integration                              | • Custom Recommendation Form  
|                                                      | • Coordination with Home Upgrade Advisors  
|                                                      | • Referrals to rebates, incentives and financing  
|                                                      | • Consumer and real estate education  
|                                                      | • Statewide green real estate working group  |
From READ to Retrofit

How “triggered” disclosure leads to energy savings
Questions?

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