

**CITY OF ALBANY
MEMORANDUM**

DATE: April 18, 2018

TO: Sustainability Committee

FROM: Chelsea Polevy, CivicSpark Climate Fellow
Claire Griffing, Sustainability & Resilience Manager

SUBJECT: Analysis of Home Energy Score Pilot

BACKGROUND

The Department of Energy (DOE) developed their Home Energy Score (HES) program in 2012 to encourage and motivate homeowners, homebuyers, and home sellers to improve their home energy performance based on scoring results. The DOE provides a wide range of resources for homeowners, real estate professionals, and assessors that choose to participate in the voluntary program. The Bay Area Regional Energy Network (BayREN), in collaboration with Stopwaste, is currently providing support to local governments by aiding in the recruitment and training of HES qualified assessors and developing HES program protocols.

Qualified professionals certified by StopWaste perform assessments. Assessors submit reports using the DOE reporting portal. Home Energy Score reports identify existing conditions and generate recommendations for energy improvements (see Attachment 1 for an example reports). The report also includes a numerical valuation of the efficiency of a house on a 1-10 scale.

The CAP Implementation Subcommittee proposed a voluntary assessment pilot program, which was approved by the Sustainability Committee in the summer of 2017. Staff administered a pre-survey in September 2017 and selected 20 homes to receive free assessments. The City received four bids and hired Home Comfort & Energy Solutions to provide HES assessments to 20 Albany homeowners. Staff worked with contractors to determine pilot participants, schedule assessments, and attend assessments. Upon completion of all 20 assessments, staff worked with contractors, Frontier Energy, and StopWaste to ensure accuracy of data. A post-survey was administered and data/results were analyzed. Staff received the final assessment on April 9th, and the final data set was received the afternoon of April 13th.

DISCUSSION

Home Energy Score Data

Home Energy Scores range from 1-10 points and the national average is 5 points. Staff analyzed the HES data from the pilot program, and the information is summarized below.

- The HES range was 1-10 points, the mode was 5, and the average was 4.6 points.

- If a homeowner was to implement all retrofit recommendations outlined in their report, their HES would increase by 1.65 points on average.
- The average home in this pilot program emits an estimated 9,277 CO₂e/year. With upgrades, emissions would decrease by an average of 1,268.95 CO₂e/year.
- Homeowners would save an estimated \$129.95/year if they were to implement all retrofit recommendations.
- 100% of homes in this pilot study have natural gas heating
- 0% of homes have A/C, wall insulation, or roof insulation
- The most common retrofit recommendations listed in the reports were:
 - Add wall insulation – 90%
 - Add floor insulation – 80%
 - Improve house envelope/air sealing – 80%

Homeowner Feedback

Subsequent to distribution of the home energy score reports, staff administered a post-survey to homeowners to determine the program's effectiveness. Staff received 16 of 20 survey responses. Survey results are summarized below.

- Overall satisfaction with the assessment process was high. 81% of respondents were very satisfied or satisfied, 18% of respondents were neutral, and 0% were dissatisfied or very dissatisfied.
- Half of the respondents felt satisfied with the timeliness of receipt of the HES report, while the other half felt neutral, dissatisfied, or very dissatisfied. Those who were dissatisfied explained that it took weeks/months to receive their final HES report.
- In general, respondents were pleased with the scheduling process, communication with the assessor, quality of service provided by the assessor, and time commitment.
- While 65% of respondents were very satisfied or satisfied with the information provided in the HES report, 35% felt neutral or dissatisfied with the information. Those who were dissatisfied noted lack of detail, confusing/unclear terminology, and inaccuracies in the reports.
- While 69% of respondents said they would be very likely or likely to recommend the HES program to a neighbor or friend, only 25% said they would be likely to recommend the program if the assessment cost \$250.
- 69% of respondents noted that they are very likely or likely to implement at least one report recommendation, while 31% are unlikely or unsure.
- The factors that will influence respondents' decisions to implement report recommendations are (in order of importance):
 - Project costs – 88%
 - Improved home comfort – 88%
 - Project aligns with priority home improvements – 88%
 - Time to complete project – 821%
 - Complexity of project – 81%
 - Utility bill savings – 75%
 - Reducing carbon footprint – 75%
 - Support from home energy advisor program – 25%

- The recommendations homeowners are most likely to implement, in order of interest, are:
 - Floor insulation – 56%
 - Attic insulation – 56%
 - Wall insulation – 31%
 - Envelope/air sealing – 25%
 - Water heater – 25%
 - Duct repair – 13%
 - Heating equipment – 6%
 - Other: purchase more energy-efficiency appliances; none
- Based on the information homeowners received from this report, 50% are more likely to make energy improvements to their building, while 50% are unchanged in their interest.
- Fifty percent of respondents felt there was something missing from the assessment, report, or process in general. Of those respondents, 50% referenced lack of detail and/or unclear recommendations.

ANALYSIS

An analysis of the successes and challenges of the Home Energy Score pilot program are outlined below.

Program Benefits

Home energy score assessments offer the following benefits:

- Provide homeowners, buyers, and renters comparable and credible information about a home's energy use
- Have the potential to motivate homeowners to make energy improvements
- Provide tailored, building-specific recommendations that can increase property values and increase energy efficiency/reduce greenhouse gas (GHG) emissions
 - Increased energy efficiency includes non-energy benefits such as improved durability, occupant comfort and indoor air quality, lower utility bills, increased property value, and the creation of green jobs
- Provides information to the City on building performance that could inform policies, incentive programs, and grant applications
- Program participants have access to Home Energy Advisors to assist with implementation of recommendations

Program Challenges

Limitations of the home energy score program include:

- Timeliness of process, most notably generation of final report for homeowners
 - Multiple post-survey respondents expressed frustration with the length of time it took to receive their final HES report
 - Staff executed a contract with Home Energy Solutions on October 30th, 2017 for 20 home assessments. Staff did not receive the final report until April 9th and the final data until April 13th. Factors causing delay include competing staff priorities,

difficulty finding interested and responsive homeowners, and contractor delays related to data entry.

- Department of Energy (DOE) requirements include a QA/QC process that can add modest time to report generation
- Reports may be vague, unclear, or inaccurate
 - Multiple survey respondents had difficulty interpreting their retrofit recommendations because they were not familiar with the report's terminology (e.g. R-values)
 - No information on costs of retrofit implementation or cost savings for specific retrofits
 - One survey respondent listed multiple inaccuracies in their report, including basic home characteristics such as window material and roof type
- Concerns with effectiveness of recommendations
 - Home Energy Scores will not increase significantly with the implementation of retrofits. On average, scores will increase by 1.9 points if all recommended retrofits are implemented. Twenty percent of scores (4 of 20 homes) will not increase at all with the implementation of retrofits.
 - Energy and cost savings are low. Specifically, average annual GHG savings are 1,268.95 CO₂e and average annual utility bill savings are \$129.95.
 - Installation of gas water heaters were included in the report recommendations, which highlights the program's inability to promote the City's fuel switching priority
- Additional limitations
 - HES is not able to analyze existing solar power or recommend the installation of renewables
 - The program only applies to single-family dwellings and side-by-side duplexes
 - The program is asset based and therefore does not provide information on behavior
 - The HES program provides information only. There is no actual requirement to upgrade properties and thus no quantifiable GHG reductions.

ATTACHMENTS

1. Sample Home Energy Score Reports