

PACE Loans: Does Sale Value Reflect Improvements?

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Property-Assessed Clean Energy (PACE) programs are designed to promote energy efficiency, water conservation, and renewable energy improvements. The program is intended to eliminate the barriers of high upfront costs and lack of available funding for energy improvements. However, the issue of lien priority of the PACE assessment (the financed amount for the energy improvement) has brought controversy to the program. Under current rules, PACE assessments are billed with property taxes, and generally have a lien priority on par with tax liens and above the liens on first mortgages. PACE assessments' priority lien over existing mortgages has met with disapproval from the government-sponsored enterprises (GSEs).

In July 2010, the Federal Housing Finance Agency (FHFA, which oversees the GSEs) issued a statement:

“[FHFA] has determined that certain energy retrofit lending programs present significant safety and soundness concerns that must be addressed by Fannie Mae, Freddie Mac and the Federal Home Loan Banks.... Under most of these programs, such loans acquire a priority lien over existing mortgages.... First liens for such loans represent a key alteration of traditional mortgage lending practice.

They present significant risk to lenders and secondary market entities.” (FHFA [2010])

In a directive issued February 28, 2011, the FHFA reiterated its concerns, and expressly directed the GSEs *not* to purchase mortgages affected by first lien PACE obligations (see FHFA [2011]). On June 15, 2012, the FHFA issued a notice of Proposed Rule-making, which proposed to formalize the rule, but made it clear that it was willing to consider alternatives that mitigated the risk to the GSEs (see FHFA [2012]). A final rule has not been issued.

One solution would be to restructure these PACE assessments to be subordinate to the first lien while still maintaining the defining PACE feature of having the assessment remain with the property through a normal sale, a refinancing, or a foreclosure sale. Indeed, although the Federal Housing Administration (FHA) has been largely silent on the issue of insuring mortgages on homes associated with PACE and inconsistent in its actions, it issued a statement on August 24, 2015, that “FHA will make financing available for single family homes with existing subordinated Property Assessed Clean Energy (PACE) loans as long as they meet certain conditions.”¹ Such “conditions” are still being developed.

We believe that if the market for PACE improvements is to develop, the PACE lien

must be subordinated. This will remove the regulatory uncertainty that hangs over the market, and the FHA statement suggests it is on board with that strategy. A critical policy question remains: If a home moving to foreclosure has a subordinate lien that travels with the property, would the GSEs and FHA be worse off than with a similarly situated home that had no PACE improvement and PACE assessment because it would realize a potentially lower sale value? This study addresses the policy question by looking at how the resale values of homes with PACE-financed improvements compare with those of similarly situated homes without PACE via three different methodologies.

First, we compared an actual PACE sales price with a projected market sales price by using three different home price indexes (HPI).

Second, we created a random sample of similarly situated non-PACE homes and compared that random sample with the PACE sample, focusing on original purchase price, sale price, and the difference between the original purchase price and the sale price.

Third, we conducted a multivariate regression of PACE homes and non-PACE homes, controlling for other property characteristics.

Using these different methodologies, we find that all three demonstrate that there is a net positive impact of PACE on the resale value of the home, which ranges from \$199 to \$8,882. We also find that the PACE effect of foreclosed properties is on the higher end of that range: There is nearly a \$7,000 premium for homes purchased from foreclosure that subsequently receive a PACE-financed improvement.

To the best of our knowledge, ours is the first study that looks at the change in home values relative to the cost of the investment, which is the relevant consideration for entities providing the insurance or guarantee on the first mortgage (FHA and the GSEs). A few earlier studies do examine whether energy-efficient investments increase the value of a property. For example, Hoen et al. [2015] used 2002–2013 multi-state data from CoreLogic and showed that solar panels increased the value of a home by about \$15,000. However, that study did not address the cost of the investment. Residential PACE is a new program, and ours is the first study with access to significant data on the performance of actual residential PACE homes.

Our results have many policy implications. The PACE structure, under which the assessment may travel with the property through the sales chain, is critical to program growth. Although 31 states plus the District

of Columbia have passed legislation to allow for PACE loans, very few have active programs. Development of most programs has been placed on hold until the willingness of governmental and quasi-governmental entities to insure these loans is resolved. California has been the exception—it has 44,000 PACE assessments valued at close to \$900 million. If GSEs and the FHA could get comfortable with a subordinated lien that travels with the property, then other states will move quickly to develop and expand their own programs.

PACE FINANCING—UNDERSTANDING THE PROCESS

PACE loans give homeowners a new way to finance loans for energy-efficient improvements, such as a new air conditioning system, new windows, insulation, solar panels, or a water conservation system. To use a PACE loan (in California, for example), a homeowner needs to first identify a contractor that is licensed and bonded by the California State License Board and is registered to participate in the PACE Assessment program. The homeowner then applies to a provider of PACE loans for financing.² Finally, if that homeowner is approved for financing and finds the financing conditions acceptable, an assessment contract will be signed. Subsequent property tax bills will reflect the annual or semi-annual repayment amount related to the improvements.

In California, Renovate America is the largest of the firms providing PACE loans; nearly 90% of PACE loans in California are done through Renovate America's HERO (Home Energy Renovation Opportunity) program. We will use that program as an example to describe PACE loan underwriting criteria.

The underwriting criteria require both a level of borrower responsibility and restrictions on the amount that can be borrowed, which serve to ensure a threshold for credit quality, leading to a lower likelihood of eventual foreclosure. As noted in Smart [2015], a homeowner must be current on property taxes and have had no more than one late payment during the prior three years. Homeowners must also be current on all mortgage debt and cannot have had more than one late payment over the prior 12 months. The property must not have any federal or state income tax liens, judgment liens, or mechanic's liens. Property owners must not have been involved in a bankruptcy proceeding during some preceding period of time (which varies by area, from two to seven years).

Mortgage debt on the property may not exceed 90% of a property's value. Assessments originated prior to January 1, 2015, are limited to a financeable amount of 10% of a property's value; on assessments originated on or after January 1, 2015, the amount financed is limited to 15% of the value of the property for the initial \$700,000 in property value and 10% of the amount thereafter. The combined amount to be financed must not exceed 100% of the value of the property (less in certain areas). The total annual property tax and assessment may not exceed 5% of the property's market value, as determined at the time of assessment approval.

PACE LOANS—CURRENT MECHANICS

PACE assessments are payable in equal semi-annual installments, which are combined with payments of the property owner's real estate taxes. The PACE assessment is included as a separate line item on the tax bill. Under California law, PACE assessments have equal lien priority with *ad valorem* real estate taxes and other special assessments and are senior to all non-tax liens, including first mortgages. PACE assessments remain with the property, regardless of whether the property is sold, until the loan is fully paid off.

Most counties do not accept partial payments from the taxpayer.³ So, if the payment including the PACE assessment is not made in full, the payment is returned, and the entire tax payment is considered delinquent. If the bill is not paid by the due date, a 10% penalty is applied. The interest charge is 1.5% per month until the tax is paid. If a borrower is in default on a PACE assessment that has not been paid approximately a year after it was assessed, the joint power authorities (responsible for the creation and implementation of the residential PACE programs in California) can begin foreclosure proceedings. The subordination process mentioned earlier in this article would presumably modify this accelerated foreclosure process.

Note that there is no acceleration of the assessment in the event of foreclosure. The purchaser of a property out of foreclosure will continue to make payments on the assessment after acquiring that property.

PURPOSE AND METHODOLOGY

The purpose of our analysis is to determine how the resale value of a home with PACE improvements

and financing compares with similarly situated homes that do not have any PACE involvement. This allows us to address the policy question of whether a home with subordinate PACE financing that travels with the property will provide collateral for FHA and GSE first lien recoveries in a foreclosure sale that is as strong as similar properties without PACE.

Our goal is to use a number of different ways to compare resale value of PACE homes versus similar non-PACE homes, which also will help us to determine the robustness of our results. We used three different methodologies for our analysis.

- *Methodology 1.* Comparing PACE sales price with projected sales price using three different home price indexes
- *Methodology 2.* Comparing PACE homes with a random sample of similarly situated non-PACE homes
- *Methodology 3.* Multivariate regression of PACE homes and non-PACE homes, controlling for other property characteristics

DATA

The basic data for this analysis were a sample of 773 loans with PACE improvements. The homes were purchased as early as 1976, had a PACE improvement after Renovate America entered the market in December 2011, and the homes were sold between 2012 and 2015. This dataset was prepared by Renovate America and includes all homes where Renovate America has done a PACE improvement and the home was subsequently sold. All of these loans were in California and are distributed across 110 different zip codes. In approximately 55% of the sales, the assessment was paid off at the time of closing or before. In 45% of the cases, the assessment traveled with the property.

The dataset has detailed information on the original purchase price (prior to PACE financing), resale price (with PACE financing), and the cost of the improvements, where appropriate, to allow for a comparison with the non-PACE sample. Any discount to the value of the home resulting from PACE assessments that travel with the property after the sales transaction are assumed to be capitalized into the resale price, and any PACE balances that are paid off are subtracted from the resale price to reflect the lower true resale value.

Exhibit 1 summarizes the information on purchase price, resale price, PACE improvement cost, and the improvement balance left upon sale for the loans in our sample. The average purchase price was \$236,324; average sales price was \$342,577. The average cost of the PACE improvement was \$19,091, and on average, the balance that traveled with the home was \$8,501.

We used three different home price indexes in Methodology 1. All are repeat sales indexes: the CoreLogic zip code level home price index, the FHFA state level index, and the FHFA division level home price index. The CoreLogic home price index is produced monthly, and we matched the home by the month of original purchase. The FHFA state level indexes are produced quarterly; we matched it to the quarter of original purchase. The FHFA division level index is also produced monthly, and homes are matched by the month of original purchase. The division level indexes include information for each of the nine census divisions, and the Pacific Census Division includes California, Oregon, Washington, Hawaii, and Alaska. Both the FHFA state level indexes and the FHFA division level indexes use data exclusively on mortgages sold to or guaranteed by Fannie Mae and Freddie Mac. Note that because all

loans in our sample were California loans, the same state level and division level indexes were used for all observations, although the start and end dates were different. We prefer the more granular indexes (the zip code level) to the less granular indexes (state, division), as they better match the price trends of the local area. We use the less granular indexes as a robustness check to our analysis. None of these indexes can adequately capture an individual home, as even within a zip code there are different neighborhoods and often different types of homes have different rates of appreciation.

We also created a matched non-PACE sample. For each of the 773 loans in the PACE sample, a random non-PACE loan from the CoreLogic property database was matched by zip code, original purchase year, and resale year. Exhibit 2 shows a snapshot comparison of purchase and sales prices for the PACE loans and the random sample (non-PACE loans). Note that to the extent proceeds from the sale were used to pay off the PACE loans, we have adjusted the sales price of the PACE loan. So, although the actual sale price averaged \$342,577, from Exhibit 1 we know that the cost of the PACE improvements totaled \$19,091, and that \$8,405 of this was the balance left upon sale. This \$8,405 traveled with the home and would have

EXHIBIT 1

Summary Data: PACE Data Sample

Sale Year	Home Count	Purchase Price (\$)	Sale Price (\$)	PACE Improvement Cost (\$)	Improvement Balance Left on Sale (\$)
2012–2013	88	217,822.78	293,034.09	16,894.59	12,909.16
2014	328	227,460.20	319,021.40	18,223.64	10,683.35
2015	357	249,028.93	376,430.49	20,430.71	5,201.72
Total	773	236,324.29	342,576.59	19,091.64	8,405.12

Source: Renovate America PACE Loan Database.

EXHIBIT 2

Summary Data: PACE vs. Non-PACE Sample

Sale Year	Count	Purchase Price (\$)		Sale Price (\$)		Adjusted Sale Price
		Non-PACE	PACE	Non-PACE	PACE	
2013	176	205,213	217,823	253,028	293,034	289,049
2014	656	235,281	227,460	310,643	319,021	311,481
2015	712	248,455	249,029	363,644	376,430	361,202
All	1,544	237,915	236,324	328,471	342,577	331,890

Sources: Renovate America PACE Loan Database and CoreLogic Property Database.

been capitalized into the price. Thus, for the purposes of our analysis, we subtracted \$10,686 from the sale price of the PACE loan, for an adjusted sale price of \$331,890 (shown in the final column of Exhibit 2). This is the price we used for comparing with the home price indexes and the non-PACE loans.

How similar are the characteristics of the PACE and non-PACE samples? Exhibit 3 shows that the ages of the homes, the number of bedrooms, number of bathrooms, and number of square feet are very similar.

EMPIRICAL RESULTS

Methodology 1 Results (PACE home sale prices versus projected market values using home price indices)

Exhibit 4 shows the results of our analysis, in which we compare sale prices of the PACE loans with their projected market value by using our three different home price indexes—the CoreLogic data on the zip code level, the FHFA data on the state level, and the FHFA data on the division level. *We find that PACE homes have a higher*

sale price than would be projected using the home price indexes. As can be seen, the adjusted sales price of the PACE home was \$331,890. Based on the initial purchase price and the CoreLogic zip code level HPI, the projected market value was \$331,691, indicating that the actual sales price was \$199 higher than the projected sales price. The differences are larger using the two FHFA indexes (\$1,667 for the state level index; \$8,882 for the division level index), which indicates a greater benefit on the PACE homes.

These results demonstrate that homes with PACE loans fully kept up with the home price appreciation in the area, after taking account of both the financing cost and improvements, regardless of the price index used. The homes' resale value demonstrated a positive PACE premium of \$199–\$8,882 (depending on the home price index used). Results for the zip level and state level analysis are not significantly different from zero, as shown in Exhibit 5. We do recognize we have a relatively small sample, and due to the newness of the program, all of our sales occurred between 2012 and 2015, a period of rising home prices. Although it would have been more conclusive to look at this over a cycle, we do not think this imparts any bias to our results.

EXHIBIT 3

Characteristics: PACE vs. Non-PACE Sample

	Year Built		Bedrooms		Bathrooms		Living Space (sq ft)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
	Non-PACE	1985.89	1989	3.31	3	2.47	2	1,887.05
PACE	1983.91	1988	3.50	3	2.50	2	1,897.72	1,732
All	1984.90	1988	3.40	3	2.49	2	1,892.39	1,709.5

Sources: Renovate America PACE Loan Database and CoreLogic Property Database.

EXHIBIT 4

PACE Home Sale vs. Projected Market Values: Results Using Home Price Indexes

Sale Year	Count	Purchase Price (\$)	Projected Market Value (\$)			Sale Price (\$)	PACE Balance Payoff (\$)	Adjusted Sale Price = [Sale Price – PACE Balance Payoff] (\$)	Adjusted Sale Price–Projected Market Value (\$)			
			CoreLogic Monthly Zip	FHFA Qtr State	FHFA Monthly Division				No HPI Adj.	CoreLogic Monthly Zip	FHFA Qtr State	FHFA Monthly Division
2012–2013	88	217,823	287,052	280,515	273,588	293,034	3,985	289,049	71,226	1,996	7,867	14,794
2014	328	227,460	313,292	308,325	298,381	319,021	7,540	311,481	84,021	–1,811	4,305	14,249
2015	357	249,029	359,599	358,814	354,115	376,430	15,229	361,202	112,173	1,602	–2,437	2,262
All	773	236,324	331,691	327,946	320,731	342,577	10,687	331,890	95,566	199	1,667	8,882

Sources: Renovate America PACE Loan Database, CoreLogic House Price Index, and FHFA House Price Indexes.

EXHIBIT 5

Statistical Significance: Results Using Various HPI Measures

	No HPI Adjustment	Zip-Level HPA Adjustment	State-Level HPA Adjustment	Division-Level HPA Adjustment
Mean	95,566	199	1,667	8,882
T-Value	24.01	0.06	0.52	2.75
P-Value	<0.0001	0.9518	0.6011	0.006

Sources: Renovate America PACE Loan Database and CoreLogic Property Database.

Methodology 2 Results (PACE homes versus non-PACE matched sample)

In Exhibit 2, and repeated in Exhibit 6, we show that the purchase price of the PACE and non-PACE homes were very close (\$237,915 for non-PACE homes; \$236,324 for PACE homes); the PACE homes were actually \$1,591 less expensive, on average. The resale price was slightly higher for the PACE homes (\$331,890 versus \$328,471). Exhibit 6 shows that the gain on the PACE homes is \$5,010 more than the gain on non-PACE homes, \$95,566 versus \$90,556. This difference of \$5,010 is statistically significant, indicating the homes that received and financed the energy-efficient improvements performed better than their counterparts that did not.

These are averages, but the FHA and GSEs are also concerned about the tail. That is, the FHA and GSEs can never recover more than they are owed on a home in order to offset losses on other homes. Our results indicate PACE loans would potentially generate lower losses for the FHA and GSEs: On 92% of the PACE loan sales, the adjusted sales price was higher than the purchase price, versus 87% of the non-PACE sample.

Methodology 3 Results (multivariate regression analysis)

We pooled the loans with PACE improvements and our matched sample of loans without PACE improvements and conducted a multivariate regression analysis (such that the resale price is a function of the indication of PACE improvements and other control variables). The results of this analysis are shown in Exhibit 7. Note that the coefficient on the PACE indicator is positive. On average, PACE improvements will increase the home resale value by \$4,042.⁴

EXHIBIT 6

Statistical Significance: PACE Homes vs. Non-PACE Random Sample

	Purchase Price	Sale Price	Dif = Sale – Purchase
Non-PACE	237,915	328,471	90,556
PACE	236,324	331,890	95,566
Dif	1,591	-3,419	-5,010
T-Value	1.44	1.37	1.99

Sources: Renovate America PACE Loan Database and CoreLogic Property Database.

EXHIBIT 7

Multivariate Regression Results: How Much Does PACE Increase the Home Value?

Variables	Estimate	T-Value	P-Value
Intercept	\$60,666.73	5.27	<0.0001
PACE Indicator	\$4,042.29	0.61	0.543
Purchase Price	0.74	29.18	<0.0001
Sq. Feet of Living Space	\$43.07	6.38	<0.0001
No. of Bathrooms	\$3,763.58	0.61	0.5407

Sources: Data from Renovate America PACE Loan Database and CoreLogic Property Database; author estimates.

We had an interest in seeing how homes with a foreclosure behaved with the PACE assessment. Unfortunately, the number of observations for PACE homes that were purchased from foreclosure, or later went into foreclosure, is very limited. We first considered homes purchased out of foreclosure and tested whether a subsequent PACE improvement would increase the resale value. Exhibit 8 shows results from that analysis. Properties purchased from foreclosure sold \$33,435 worse than normal, non-foreclosed properties, which is a statistically significant number. The PACE improvement increased the sale value of all homes by \$1,395 and

EXHIBIT 8

Multivariate Regression Results: Foreclosure Variables

Variables	Estimate	T-Value	P-Value
Intercept	\$63,658.6	5.49	<0.0001
PACE	\$1,394.6	0.2	0.8377
Purchase from Foreclosure	-\$33,435.8	-1.99	0.0466
PACE*Purchase from Foreclosure	\$5,430.4	0.1	0.9228
Purchase Price	0.7	29.14	<0.0001
Sq. Feet of Living Space	43.2	6.4	<0.0001
No. of Bathrooms	\$3,763.9	0.61	0.5405

Sources: Based on data from Renovate America PACE Loan Database, CoreLogic Property Database, Author Estimates.

of foreclosure homes by \$5,430. This suggested that a PACE improvement would increase the value of a property purchased from foreclosure by a total of \$6,824. Although these results are not statistically significant, they are indicative.

We also wanted to look at the performance of loans purchased under normal channels, received a HERO improvement and a PACE assessment, and later went into foreclosure. Unfortunately, there were only four loans in our sample in which the foreclosure sale was complete; thus, any analysis was difficult. We did compare the raw price appreciation of these 4 loans with the 26 loans in our matched sample that were sold through foreclosure; we found that the four PACE loans experienced appreciation of 13% post-purchase (after adjusting sale price downward to account for improvements paid off using the sales proceeds), while non-PACE loans experienced appreciation of only 7%.

Exhibit 9 summarizes the results from our three different methods.

EXHIBIT 9

Summary of Results

	PACE Premium (\$)
<i>Methodology 1: Comparison with Home Price Indexes</i>	
CoreLogic Monthly Zip	199
FHFA Quarterly State	1,667
FHFA Monthly Division	8,882
<i>Methodology 2: Comparison with Random Sample of Similar Non-PACE Homes</i>	
	5,010
<i>Methodology 3: Comparison with Multivariate Regression</i>	
All Sales	4,042
Homes Purchased out of Foreclosure	6,824

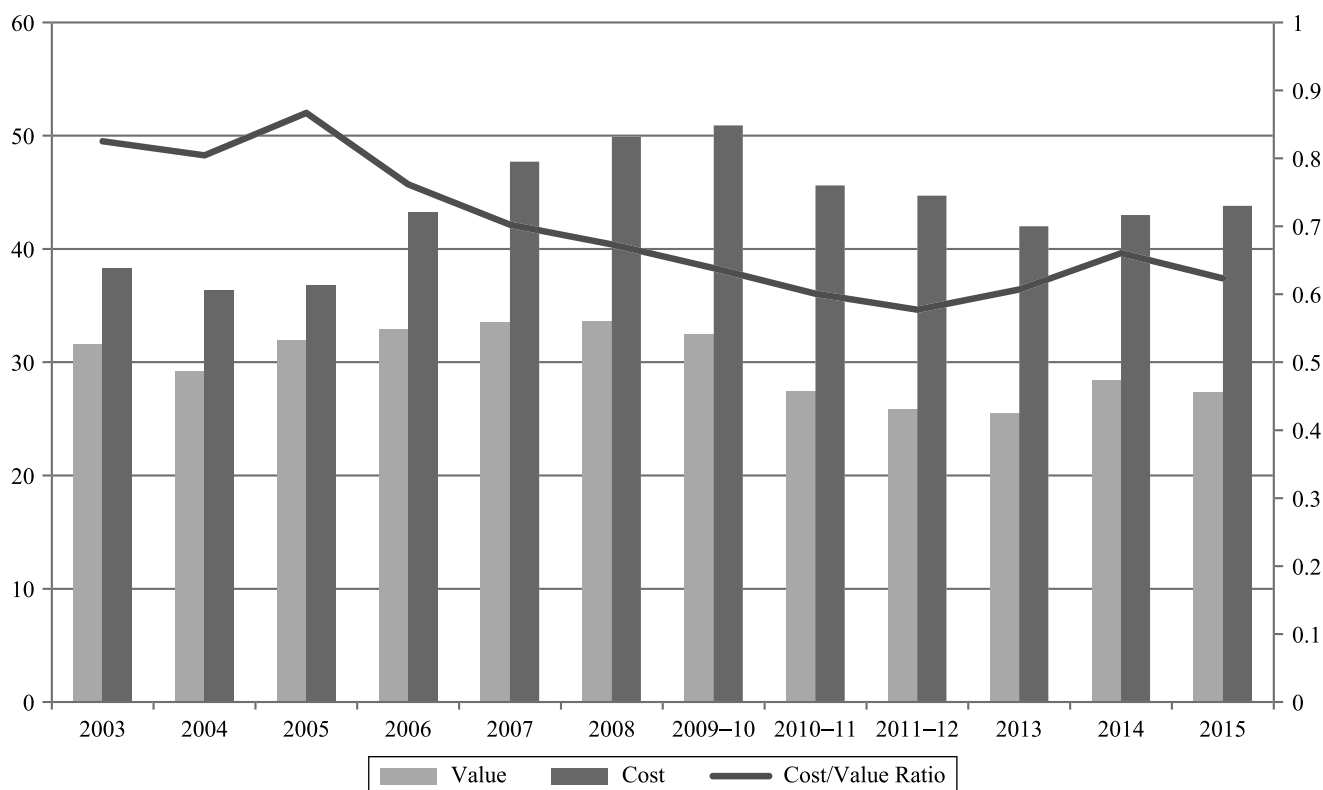
In each case, the PACE premium was positive. That is, when comparing PACE with non-PACE homes, the PACE improvements increased home value by at least as much as their costs. Thus, all three methodologies and all six data points demonstrated a net positive impact of PACE on the resale value of the home. The PACE premiums (versus non-PACE homes) ranged from \$199 to \$8,882 (depending on the methodology selected).

Note that most renovations increase the value of a home by less than their cost. The most comprehensive study of this is the annual *Cost versus Value Report*, which compares remodeling costs with realtor's estimates of how much these remodeling efforts increase the value of the home. This is a joint research endeavor of RemodelMAX (publisher of estimating tools for remodelers) and the National Association of Realtors. RemodelMAX estimates the cost of each of 36 different remodeling projects, including bathroom remodeling, adding a bathroom, kitchen remodeling, adding a deck, replacing siding, and roof replacement in different markets, based on remodeling software provided by Clear Estimates. The National Association of Realtors, in cooperation with *REALTOR Magazine*, distributes an online survey to 200,000 appraisers, sales agents, and brokers. This survey includes project descriptions, illustrations, construction costs, and median home prices for each city. The participants indicate their perception of how much various remodeling efforts raise the value of a home. The results of the 2015 *Cost versus Value Report*, shown in Exhibit 10, indicate that between 2012 and 2015, these remodeling projects recovered 58%–66% of their full cost.⁵

If PACE loans were to be subordinated, like liens on other types of repairs, why should these liens be designed differently so that they travel with the property? The answer is threefold. First, energy savings produce a public gain in terms of less use of scarce natural resources, and as a society, we want to encourage this. One way to encourage this is to overcome the market failure in adoption of energy and water conserving measures, giving homeowners a way to affordably access these products. This is particularly important when homeowners are confronted with unplanned and necessary expenses, such as a broken HVAC system or a leaking roof, and might choose the lowest upfront cost item with the lowest long-term energy and cost savings. Second, the PACE program includes consumer protections, such as the use of licensed, bonded contractors, and has maximum price guidance

EXHIBIT 10

How Much Do Other Improvements Recover?



Source: Remodeling 2015 Report (<http://www.remodeling.hv.net/cost-vs-value/2015/trends>).

on specific repairs not readily available through other financing alternatives, such as second mortgages, unsecured personal loan products, or credit card financing. Third, while our analysis has shown those who opt for PACE enhancements will more than get their money out, the amount of data we have is limited and many homeowners might be reluctant to do the improvements, particularly if they were unsure how long they plan to stay in the home. The homeowner always has the option of paying off the lien on sale.

CONCLUSIONS

The results are robust when we compared PACE properties with similarly situated non-PACE properties. Every methodology showed a positive PACE premium at resale (ranging from \$199 to \$8,882). That is, on average, homeowners are able to recover at least their

full costs at resale, whereas most other home-improvers are only able to recover about 60%.

It is important to realize that our results may actually underestimate the value of the PACE improvements upon resale. First, many homeowners opt for an improvement when the original equipment breaks. Thus, if the improvement was not made, the home value may have been lower. Second, energy-efficient improvements are a relatively recent phenomenon and home buyers may be reluctant to fully capitalize into the price the discounted present value of the lower energy costs, as they are unsure how long such benefits will last. Over time, we may observe a higher capitalization rate.

The bottom line is that our analysis indicates that if the PACE lien was subordinated to the first mortgage, the GSEs and FHA would be at least as well off, in all respects, by making a loan on a home with a PACE lien as a home that did not have a PACE lien.

ENDNOTES

The views expressed in this article are those of the authors alone, who maintained full control over the methodology and results. Funding for this project was received from Renovate America.

¹See U.S. HUD [2015].

²In a minority of cases (about 10%), the homeowner seeks assistance directly from the loan provider.

³Los Angeles County is the exception, in that it *accepts* partial payments.

⁴Note that the estimate is not statistically significant, meaning that the PACE coefficient is not significantly different from zero. The regression results show that a PACE loan will not hurt the sale value.

⁵Available online at <http://www.remodeling.hw.net/cost-vs-value/2015/trends>.

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