March 26, 2012

Via Electronic Mail

Alfred M. Pollard
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(Comments/RIN 2590-AA53)

RE: **Comments of Environmental Defense Fund on the Federal Housing Finance Agency's Advance Notice of Proposed Rulemaking re Property assessed Clean Energy (RIN 2590-AA53)**

Dear Mr. Pollard:

Pursuant to the Advance Notice of Proposed Rulemaking and Notice of Intent to Prepare an Environmental Impact Statement ("EIS") dated January 26, 2012 (the "ANPR"),[1] Environmental Defense Fund ("EDF") offers the following comments on the Federal Housing Finance Agency (the "Agency")'s proposed rulemaking with respect to Property Assessed Clean Energy ("PACE") Programs. We appreciate the Agency's effort to craft a fair opportunity for public comment, as ordered by the U.S. Court of Appeals for the Ninth Circuit (the "Ninth Circuit").

EDF is a leading national environmental nonprofit organization, headquartered in New York, representing more than 700,000 members and supporters nationwide. Since 1967, EDF has linked science, economics, law, and innovative private-sector partnerships to create breakthrough solutions to the most serious environmental problems. EDF is deeply committed to accelerating our nation's progress toward a low carbon, clean energy future. Our work focuses on advancing the marketplace for energy efficiency, demand response, and renewable resources, by removing

[1] *Mortgage Assets Affected by PACE Programs*, Advance Notice of Proposed Rulemaking, RIN 2590-AA53, at 77 Fed. Reg. 3,958 (January 26, 2012) ("ANPR").

barriers to entry and getting the rules right so that clean alternatives have the opportunity to flourish.

EDF believes that the questions in the ANPR do not invite comment on all of the important issues at stake. Specifically, EDF urges consideration a full risk assessment of PACE, and highlights the need for research and standards to close the knowledge gaps needed to evaluate the positive or negative impact of PACE programs on risk to mortgage holders.

A PRUDENT RISK ASSESSMENT OF PACE REQUIRES THOROUGH CONSIDERATION OF REDUCED RISKS TO THE ENTITIES THAT THE AGENCY OVERSEES

The ANPR notes that the Agency is empowered to "act decisively to avoid risk to the Enterprises," and reiterates Agency's oft-repeated concerns about the "risks" represented by PACE financing – namely, that

> "…PACE programs that involve subordination of any mortgage holder's security interest in the underlying property to that of the provider of PACE financing may increase the financial risk borne by the Enterprises as holders of the mortgages on properties subject to PACE obligations, as well as mortgage-backed securities based on such mortgages. FHFA believes that any such increase in the financial risk on mortgages and mortgage-backed securities, especially if imposed without Enterprise consent, may present significant safety and soundness concerns."[2]

We appreciate the Agency's dedication to shielding mortgage holders and the holders of mortgage-backed security against any increase in risk. However, the Agency's concern about the "risk" that "may" be increased thanks to PACE financing cannot reasonably be addressed in isolation; we argue that PACE will simultaneously mitigate other, more significant risks to yield a net decline in the chance of mortgage default. PACE investments provide at least three types of significant and valuable risk mitigation:

- lowering energy costs increases the ability for the owner to pay the mortgage
- hedging against energy price shocks that result in higher electricity rates; and
- reducing or avoiding the cost of the effects of unabated climate change.

The Agency has neglected to consider in any public forum the risks to mortgage holders that PACE has the potential to mitigate. This neglect is inconsistent with the Agency's obligation to ensure that the Government-Sponsored Enterprises ("GSEs") operate in a "safe and sound manner".[3]

Energy costs can materially affect the financial condition of homeowners and thus must influence to some degree homeowners' ability to make mortgage payments. In the lower income quartile, gasoline and household energy burn one of every five dollars brought home[4]. PACE

[2] ANPR at 3,961.
[3] ANPR at 3,959; *see also* 12 U.S.C. Sec 4513(a).
[4] CBO June 17,2008. Table 1, page 3. Options for Offsetting the Economic Impact on Low- and Moderate-Income Households of a Cap-and-Trade Program for Carbon Dioxide Emissions

investments are aimed at lowering building energy consumption, thereby reducing household energy costs. Therefore, reductions in energy costs will improve household financial solvency.

Mortgage underwriting customarily considers the cost of property tax and insurance as factors in loan sizing, but the cost of energy bills is not considered, even though (a) on average, that cost is higher than either property tax or insurance costs[5] and (b) unlike property tax and insurance costs, energy bills can be significantly reduced through small investments.[6] Additionally, unlike insurance or, in most cases, property tax, energy costs for a home can vary dramatically amongst buildings (e.g., homes) that in other ways appear to be essentially identical. This is part of the reasoning underlying the bipartisan SAVE Act, currently pending in the U.S. Senate, which would require the Department of Housing and Urban Development ("HUD") to "issue updated underwriting and appraisal guidelines for any loan issued, insured, purchased, or securitized by FHA and other federal mortgage loan insurance agencies or their successors."[7]

Although the precise impact of fluctuating energy bills on mortgage affordability has not been tested, an analogy can be drawn to another household expense that is likely to be higher or lower depending on the home – transportation. In that context, a 2010 study by Natural Resources Defense Council examined the relationship between urban form and mortgage affordability in three different cities in three different regions – Chicago, Jacksonville, and San Francisco – and found, in all three regions, "statistically sound results that the probability of mortgage foreclosure increases as neighborhood vehicle ownership levels rise, after controlling for income."[8] The clear inference is that costs associated with vehicle ownership and operation, which are higher and less avoidable in some locations than in others, constitute a hidden additional cost of owning a home in an "inefficient" location, and that this hidden cost, which is ignored when mortgages are underwritten, drives foreclosure rates higher. There is good reason to expect that the same will be true for homes with inefficient energy characteristics, although the magnitude of the effect is presently unknown.

With energy costs on the rise, energy bills are already a growing burden on U.S households. This burden has been exacerbated by the financial crisis as household incomes have plummeted. In December 2008, a HUD report to Congress cited a then-recent survey by the National Energy Assistance Directors' Association as having found that "[60] percent of low-income households, 49 percent of moderate-income households, and 42 percent of middle-income households report more difficulty in paying their energy bills than in the previous year."[9] Homeowners' exposure to rising energy costs -- and, as a corollary, any exposure that their lenders might experience if the energy bills become unmanageable – can be mitigated with reduced energy use. Therefore, PACE programs can be expected to improve the overall risk profiles of mortgages by successfully reducing risks that mortgage-holders already face.

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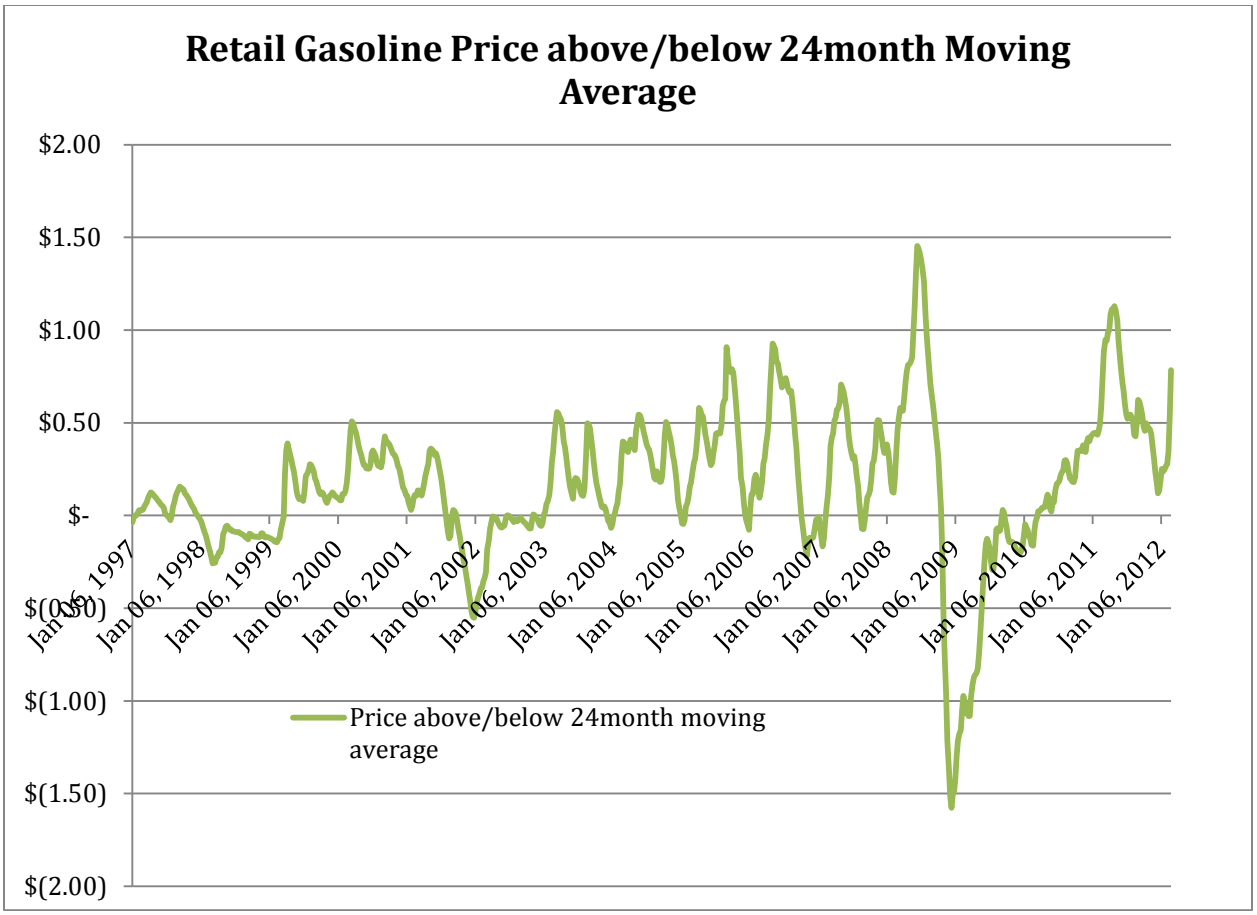
[5] http://www.imt.org/files/SAVE_Act_Factsheet.pdf.
[6] *Id.*
[7] *Id.*
[8] http://www.nrdc.org/energy/files/LocationEfficiency4pgr.pdf .
[9] Progress Report, *Implementing HUD's Energy Strategy,* Energy Task Force, Submitted Pursuant to Section 154 Energy Policy Act of 2005 December 2008, at 7, *available at* http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_4321.pdf .

The Agency should only be concerned if PACE encumbrances increase the total risk to property owners and mortgage holders. Thus, the Agency's failure to consider the full set of risks means that its analysis of PACE is a fatal flaw in its approach, since this incompleteness that leads inevitably to an conclusion that PACE increases mortgage default risk. After all, PACE assessments are not used to finance lawn furniture, or family vacations; rather, they are used to finance energy improvements to property, and thus to reduce certain costs associated with owning the property. Considering PACE obligations solely as an incremental cost does not properly capture their effect on risk profiles as a whole. Without evaluating the risks that PACE is designed to mitigate, the analysis is bound to find that residential PACE programs with the lien-priming feature are too risky, because it is likely that they have some risk associated with them, and some is more than none. In reality, however, it is quite likely that the total risk associated with any given property, and with the portfolio as a whole, would be *lower* if PACE programs are permitted to flourish. Moreover, if, as expected, energy costs rise over time, then the benefit of a PACE project to the mortgage holder will tend to increase as the PACE payments remain fixed while the value of the avoided energy costs increase.

PACE programs also can mitigate risks of energy price shocks. As shown in the graph of retail gasoline prices in California (a measure generally indicative of energy price trends), below, several significant price shocks have been observed in recent decades and, currently, are in the midst of another. Energy prices for conventional fossil fuels are set based on the Worldwide balance of demand and supply. In this respect, U.S. energy users are "price takers" – short term actions to conserve or diversify energy resources cannot substantively influence global energy prices. Therefore, U.S. energy users are at the whims of volatile energy prices. When prices spike, energy users have few options for avoiding the retail price effects. However, avoiding energy demand, as PACE programs are intended to do, provides an upside hedge against energy price shocks because it systematically reduces demand for energy.



Source: EDF based on U.S. DOE Energy Information Administration, at http://www.eia.gov/oil_gas/petroleum/data_publications/wrgp/mogas_history.html, last visited March 12, 2012.

In addition to the impact of energy prices on mortgage affordability in the case of any particular property, the GSEs' portfolio as a whole is simultaneously subject to significant climate change risk, and is a material contributor to climate change risk worldwide. The Environmental Protection Agency (EPA), the agency of the federal government with the expertise to evaluate the scientific literature on climate change, has recognized both gradual sea level rise and extreme weather events, particularly hurricanes, as effects of climate change that pose serious threats to coastal communities. "The most serious potential adverse effects are the increased risk of storm surge and flooding in coastal areas from sea level rise and more intense storms. Observed sea level rise is already increasing the risk of storm surge and flooding in some coastal areas. The conclusion in the assessment literature that there is the potential for hurricanes to become more intense (and even some evidence that Atlantic hurricanes have already become more intense) reinforces the judgment that coastal communities are now endangered by human-induced climate change, and may face substantially greater risk in the future. Even if there is a low probability of increasing the destructive power of hurricanes, this threat is enough to support a finding that coastal communities are endangered by greenhouse gas air pollution."[10]

[10] EPA Endangerment Finding, December 15, 2009, 74 Fed. Reg. 66,496, at 66,535, available at http://epa.gov/climatechange/endangerment/downloads/Federal_Register-EPA-HQ-OAR-2009-0171-.Dec.15-09.pdf.

The Securities and Exchange Commission (SEC) agrees that climate change can have material impacts on assets. In February 2010 guidance to the companies it regulated, the SEC found that "significant physical effects of climate change," including "impact of changes in weather patterns, such as increases in storm intensity, sea-level rise, melting of permafrost and temperature extremes on facilities or operations," would "have the potential to have a material effect on a registrant's business and operations."[11] The SEC noted that under existing principles, "registrants must identify and disclosed known trends, events, demands, commitments and uncertainties that are reasonably likely to have a material effect on financial condition or operating performance."[12] While the SEC left it to registrants to determine whether climate change impacts are likely to have a material effect on them, it specified that "disclosure decisions concerning… uncertainties generally should involve the:

- "Consideration of financial, operational, and other information known to the registrant;
- "Identification, based on the information, of known trends and uncertainties; and
- "Assessments of whether these trends and uncertainties have, or are reasonably likely to have, a material impact…."[13]

The SEC specified that "registrants whose businesses may be vulnerable to severe weather or climate related events should consider disclosing materials risks of, or consequences from, such events in their publicly filed disclosure documents." It seems anomalous for a federal agency which is charged with ensuring the safety and soundness of the GSEs to ignore consideration of climate risk, a "known trend and uncertainty," in a context where it is clearly relevant to a sound risk analysis, when public companies are required by the federal government to incorporate due consideration to climate risk in their decisions about what risks are material.

The Investor Network on Climate Risk, a project of Ceres, has observed in its 2012 Investor Action Plan on Climate Change Risks and Opportunities that the trend is in the direction of growing impact. "Climate change… presents significant risks and economic costs, which require serious attention from investors. Extreme weather events that affect virtually all sectors and asset classes have been linked to climate change. Global greenhouse gas emissions increased by record amounts in 2010, and carbon dioxide concentrations in the atmosphere have reached record levels. These trends suggest that the adverse impacts the changing climate is already having on the global economy – and therefore on investment portfolios – will likely grow larger, further increasing the risks for investors and companies, as well as the costs of adaptation."[14]

The impact of climate change on real property is large, and fee owners and mortgagees cannot be expected to be unaffected indefinitely. First in the line of fire, however, are insurers, who have seen enormous effects in recent years. While no single natural disaster can be tied definitively to climate change, a generalized increase in unusual weather is generally understood to relate to climate change. The year 2011 – which of course unfolded after the Agency had

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[11] Securities and Exchange Commission, Commission Guidance Regarding Disclosure Related to Climate Change; Final Rule, February 8, 2010, 75 Fed. Reg. 6290, at 6291.
[12] *Id.* at 6294.
[13] *Id.*
[14] 2012 Investor Action Plan on Climate Change Risks and Opportunities, available at http://www.ceres.org/incr/investor-summit/summit-files/2012-investor-action-plan.

taken its initial action to shut down PACE programs – should have served as a wake-up call to anyone who is serious about the big picture for risk to real estate. According to A.M. Best, the $27 billion in losses incurred *by late June 2011* exceeded the total for the entirety of 2010.[15] Benjamin M. Lawsky, superintendant of New York's Department of Financial Services, has observed that the actuarial challenge is unique and evolving. "Global warming presents unique risks, and it is vital that our insurance industry adequately account for the impacts of climate change."[16]

On March 1, 2012, Mark Way, Head of Sustainability Americas for Swiss Re joined Senators Bernie Sanders (VT) and Sheldon Whitehouse (RI) at a press conference. Mr. Way observed that "[s]ociety is simply too vulnerable to weather impacts as we saw so clearly in the unprecedented flooding, tornado and drought effects that occurred in states such as Vermont, Rhode Island, New York, Missouri and Texas last year." He further noted the importance of investment in economically attractive risk reduction measures, adding that "in Florida, for example, up to 40% of future annual expected losses could be averted by such an approach." In light of the criticality of the climate threat and the opportunity for energy efficiency investment to mitigate that threat, the Agency would do well to heed the advice offered by the reinsurance industry and give PACE proper consideration; in Senator Sanders' word, "no industry better understands the impact of global warming than the insurance industry whose job it is to analyze risk."[17]

Meanwhile, according to a recent Deutsche Bank-Rockefeller Foundation report (citing the U.S. Energy Information Administration) found that buildings are responsible for 49% of all energy and three-quarters of all electricity used in the U.S.[18] Within the buildings sector, the single-family residential sector is by far the most fruitful opportunity for greenhouse gas emission reductions, dwarfing opportunities in the commercial and institutional sectors.[19] Considering the United States' significant contribution to climate change, the exposure of U.S. real estate to climate change risk, and the opportunity for significant mitigation to be found in the single-family residential sector, the Agency's shut-down of all PACE programs in 2010 suggests a cavalier attitude toward important risks to the GSEs' portfolios.

Although the ANPR requests comment on relative merits of PACE vis-à-vis other financing mechanisms for energy efficiency, the only recognition of the energy and conservation considerations per se having any relevance to the Agency's analysis is in the portion of the ANPR devoted to the preparation of an Environmental Impact Statement. While we believe that NEPA's "hard look" has substantively improved the quality of federal regulatory decision-making, we object to the implication that NEPA's "hard look" required consideration of these factors, but the safety and soundness analysis itself did not. This implies a fundamental

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[15] Felicity Barringer, *Three States to Require Insurers to Disclose Climate-Change Response Plans*, New York Times, February 1, 2012, available at http://www.nytimes.com/2012/02/02/business/energy-environment/three-states-tell-insurers-to-disclose-responses-to-climate-change.html.
[16] *Id.*
[17] *Climate Change Discussions Heat Up*, March 8, 2012, available at http://www.swissre.com/rethinking/climate/.
[18] The Rockefeller Foundation and DB Climate Change Advisors, United States Building Energy Efficiency Retrofits: Market Size and Financing Models (March 2012), available at http://www.rockefellerfoundation.org/uploads/files/791d15ac-90e1-4998-8932-5379bcd654c9-building.pdf, at 13.
[19] *Id.*

disinclination to consider PACE programs in their proper context – as local programs designed to reduce homeowners' exposure to energy bills, energy price shocks, climate change risks. Since energy use (and associated bills) is directly relevant to mortgage affordability, with a likely impact on foreclosure risk, and global warming generates risks to the portfolio in its entirety, a prudent analysis of the impact of PACE financing on the safety and soundness of the GSEs requires that any risk generated by PACE financing itself be analyzed in the context of the risks to the portfolio that PACE financing is designed to mitigate.

We note that our recommendations are focused primarily on that which is minimally necessary for the Agency to prudently evaluate PACE from the vantage point of a fiduciary; as a government agency with obligations to the general public, the Agency's obligation to consider benefits may be considerably broader than that which is described here. For example, in its capacity as an agency of the federal government (in which capacity the Agency is expected to consider costs and benefits of regulation overall), the Agency's analysis should presumably consider indirect effects of PACE financing, such as increased employment resulting from work undertaken pursuant to PACE financings, as well as other considerations of interest to the federal government, such as the social cost of carbon associated with this action.[20]

THE NEED FOR RESEARCH

It will be impossible for the Agency to perform a prudent risk analysis while the relevant programs are not permitted to operate. A responsible analysis will require extensive actuarial data that can only be obtained from programs that are up and running.

It is intuitively clear that PACE financings should be considered risk-neutral or favorable where energy savings actually exceed the amount of the PACE assessments. Since PACE programs are designed with the stated intent that PACE investments have positive net present value, the Agency's dismissive treatment of PACE programs suggests that it is skeptical that PACE programs in fact perform as designed in this respect. The question of the performance of PACE programs ought to be tackled directly with thoughtful research, not used as an excuse to reject PACE altogether. Indeed, a robust research effort will be essential for comprehensive risk assessment of PACE programs.

Risk is defined explicitly as the probability of a harm (or cost) multiplied by that value of the harm (or cost). Multiple risks can be compared using this simple equation, but only if both the probability and value of harm are known with some reasonable level of certainty.

The good news is that widespread deployment of new technologies, such as advanced digital metering infrastructure (i.e., smart meters), and PACE-like investments, such as building

[20] *See, e.g.,* Interagency Working Group on Social Cost of Carbon, United States Government (with participation by Council of Economic Advisers, Council on Environmental Quality, Department of Agriculture, Department of Commerce, Department of Energy, Department of Transportation, Environmental Protection Agency, National Economic Council, Office of Energy and Climate Change, Office of Management and Budget, Office of Science and Technology Policy and Department of the Treasury), *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (February 2010), available at http://www.epa.gov/otaq/climate/regulations/scc-tsd.pdf.

weatherization and rooftop photovoltaic electricity generation, can provide the reliable, systematic monitoring needed to evaluate the performance of PACE projects. Therefore, the Agency ought to be proactively executing a research plan, rather than truncating energy investments before they've had time to prove out.

To evaluate the risks associated of climate change, the Agency could draw from a growing scholarly literature on climate change risks and associated costs. In fact, this is not a new field of inquiry, as scholars like Lord Henry Stern and Richard Nordhaus, and research groups, like the Stockholme Institute, have developed methodologies for evaluating climate change costs. As well, the hundreds of contributing scientists in the International Panel on Climate Change have been preoccupied with this question for decades. In addition to surveying the existing literature, the Agency can draw from emerging research. For example, one recent study estimated that 3.7 million coastal homes in the U.S. are at risk of flooding from sea level rise as a consequence of climate change.[21]

Another area of emerging research pertains to energy price shocks, and how PACE-like programs can provide upside hedge against such shocks. The avoided costs of energy enjoyed as a consequence of PACE investments are non-trivial, and can have a significant impact on household finances. For example, a recently published study estimated that Californian's could avoid over $5 billion in retail gasoline and diesel fuel costs in the event of another energy price shock in year 2020 thanks to the avoided energy demand achieved by implementing the state's Global Warming Solutions Act.[22]

THE NEED FOR STANDARDS

Finally, we note that the Agency's, or any other party's, ability to perform an analysis of the risk associated with PACE programs may be hamstrung as a consequence of the lack of analytic standards for projecting, ensuring, and measuring/verifying the anticipated and realized energy savings in residential PACE programs nationwide. This problem is integral to the Agency's initial opinion on building energy efficiency opportunities. Careful review of existing project outcomes, as well as a persistent ongoing effort to consistently document such outcomes in a standardized manner, will certainly inform the Agency's opinion.

While this lack of uniformity may frustrate the Agency as it attempts to understand the impacts of PACE programs, this issue is not unique to PACE, nor is it unique to the residential sector. PACE is part of a revolution in energy efficiency finance, in both public and private sector contexts, in which new structures have been emerging nationwide that aim to leverage the long-term saving streams arising from energy efficiency retrofits prospectively to finance the retrofits. Our experience has led us to identify the lack of uniform, accepted methods as a crucial

[21] See report and maps at Climate Central at http://sealevel.climatecentral.org/; last visited March 21, 2012.

[22] Fine, J., C. Busch, and R. Garderet. 2012. The upside hedge value of California's global warming policy given uncertain future oil prices. *Energy Policy*. doi:10.1016/j.enpol.2012.01.010.

barrier to such financing by banks in several other sectors, including large commercial buildings and multifamily residential buildings.

In an effort to address this methodology gap in the large commercial building context, EDF has convened engineering and underwriting experts for an Investor Confidence Project which is developing specifications for baselining energy use, projecting savings from proposed retrofits, and measuring and verifying results. While not reinventing the wheel, we are bringing together, into an integrated process, best practices from engineering disciplines that each play a role in identifying, designing and executing projects, but traditionally are separate areas of expertise with separate standards.

Our goal is for tomorrow's energy underwriters to be able to make apples to apples comparisons between proposed projects and have greater confidence that projected savings will materialize. In the future, prospective underwriters should have a way to know that projections were made using rigorous best-practice methods, and that provision is being made to assure that work is done as contemplated by the energy auditor and proper steps are being made to ensure it performs. Ultimately, a track record of success should further enhance the perceived reliability of upfront projections, making for a virtuous circle. Achieving this goal requires a process that is replicable, transparent, and auditable. Although our project is not focused primarily on data gathering, a more uniform approach to project engineering can be expected to generate more comparable data, facilitating the actuarial-level analysis that the Agency and other interested parties will want to perform.

While our effort has focused on large commercial buildings, our experts have advised us that the building blocks of this approach – baselining, projecting, equipment commissioning, ongoing conditioning, and measurement and verification (M&V) – represent an approach to an entire project lifecycle that can and should be scaled for any sector, *including* projects in single-family residential buildings (provided the project is designed to generate savings above an appropriate threshold – i.e., in excess of natural variability in energy use). Therefore we would recommend that the Agency, if it is serious about understanding the risk presented by PACE programs, encourage the promulgation of best practices for project engineering and require data gathering in a sufficiently granular, robust manner to support reliable analysis.

We recommend the promulgation of best practices for M&V. We also emphasize the importance of proper scaling of the M&V effort so as to avoid unnecessary transactions costs. The relatively small dollar value of any single retrofit project in the single-family residential sector suggest an appropriately scaled M&V approach would need to be reasonably feasible without adding significantly to the cost of projects. Specifically, statistical sampling through spot checking might be part of an appropriately scaled approach when a large number of similar projects are being implemented. For PACE programs to be required to incorporate M&V processes so burdensome that their value to homeowners is undermined would defeat their purpose, robbing owners of the properties in the GSEs' portfolio of a critical opportunity to

mitigate energy and climate risks that the Agency, with its focus on overall safety and soundness, should take seriously.

CONCLUSION

PACE programs represent an innovative response to real and serious risks to the portfolios held by the Enterprises. Unfortunately, the Agency, by framing its analysis of PACE programs in a manner that sidesteps any consideration of those risks, is proposing an approach that forecloses the possibility of a prudent assessment of the PACE programs and leaves serious energy and climate risks to the portfolio unaddressed. Ironically, in the name of prudent oversight, the Agency has shut down programs that represent some of the most promising opportunities to reduce these real risks to the portfolios, while allowing those risks to grow unabated. We urge the Agency to opt for a different approach – one that gives due weight to the serious risks that PACE programs mitigate. As a general matter, since the risk associated with the burden of energy expenditures in any home can be safely assumed to be greater than zero, a PACE financing where the cost burden of making the PACE assessment payments really is smaller than the savings directly attributable to the PACE-financed improvements should be understood to be at worst risk-neutral, and potentially favorable. The Agency should use its position of authority over the Enterprises to advance the understanding of energy and climate risks as well as the value and cost of mitigation measures, in order that prudently-structured mitigation mechanisms such as PACE programs – and the safety and soundness of the Enterprises and their portfolios – can be optimized.

Sincerely,

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