CRL
Center for Responsible Lending

THE SHADY SIDE OF SOLAR SYSTEM FINANCING

To Spur Widespread Adoption of Clean Energy, Policymakers and Regulators Must Do More to Protect Consumers from Shady Practices in the Residential Solar Financing Market

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July 2024

www.responsiblelending.org

About The Center for Responsible Lending (CRL)

The Center for Responsible Lending (CRL) is a non-partisan, nonprofit research and policy advocacy organization working to promote financial fairness and economic opportunity for all, end predatory lending, and close the racial wealth gap. CRL's expertise gives it trusted insight to evaluate the impact of financial products and policies on the wealth and economic stability of families of color, rural, women, military, low-wage, low-wealth, and early-career workers and communities. CRL is an affiliate of Self-Help, one of the nation's largest nonprofit community development financial institutions. We work in partnership with national and local consumer, faith, and civil rights organizations.

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Acknowledgments

The authors would like to acknowledge Michael Calhoun, Mitria Spotser, Al King, Ellen Harnick, Barbara Wolf, Martin Eakes, Jim Overton, and Sarah Connette, each of whom provided helpful feedback and insight during the creation of this report.

We would like to thank Archetype Graphic Design & Writing Services, Inc. for their help in designing and formatting this report.

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Executive Summary

Rising energy costs and the increasing environmental threats posed by climate change are causing a growing number of American homeowners to turn to the financial services sector to pay for energy-efficient renovations and upgrades to their homes. This segment of a broader financial market, known as consumer green lending, provides financing for many consumer products designed to have a positive environmental impact and provide potential energy cost savings. As of 2023, 4.4% of all residential homes in the United States had solar power systems installed, with Hawaii, California, and Arizona having the greatest percentages of homes powered by residential solar systems. The solar finance industry is significantly smaller than the mortgage market; however, its reliance on securitization for capital and an estimated $3.89 billion in asset-backed securities represents a growing economic footprint. The clean energy transition in the United States will not succeed and will not be equitable without broad adoption by low-to-moderate income (LMI) consumers. This will require a clear understanding of the consumer benefits of clean energy, as well as effective state and federal consumer protection regulations.

Key Findings Include:

1. **Elements of solar financing products and sales processes are identical** to those used by predatory subprime lenders in 2007 to target low- and moderate-income and minority borrowers.
2. **GoodLeap, Sunlight Financial, Mosaic, Sunrun, and Sunnova** together account for 80% of the residential solar loan market, according to the most recently available public estimate.
3. **Solar financing agreements often leave homeowners in a worse** economic situation than before the door-to-door salesperson visited them. This solar debt elevates the risk that the consumer will lose their home to bankruptcy or foreclosure.
4. **The price of the solar system typically is substantially inflated** if a consumer finances a system. This allows door-to-door sellers to falsely represent that borrowers are getting financing with a low nominal payment rate when most of the financing cost is hidden in the inflated price of the solar panel system. This markup amount is not revealed to the homeowner, and installers are often forbidden from disclosing the markup.

Introduction

With rising energy costs and the increasing environmental threats posed by climate change, growing numbers of American homeowners are turning to the financial services sector to pay for energy-efficient renovations and upgrades to their homes. This segment of a broader financial market, known as consumer green lending, provides financing for many consumer products designed to have a positive environmental impact and provide potential energy cost savings. Financed products range from window replacements and insulation upgrades to electrification and installation of solar panels. The solar finance industry is significantly smaller than the mortgage market; however, its reliance on securitization for capital and an estimated $3.89 billion in asset-backed securities represents a growing economic footprint that deserves the attention of regulators and consumer advocates.[1]

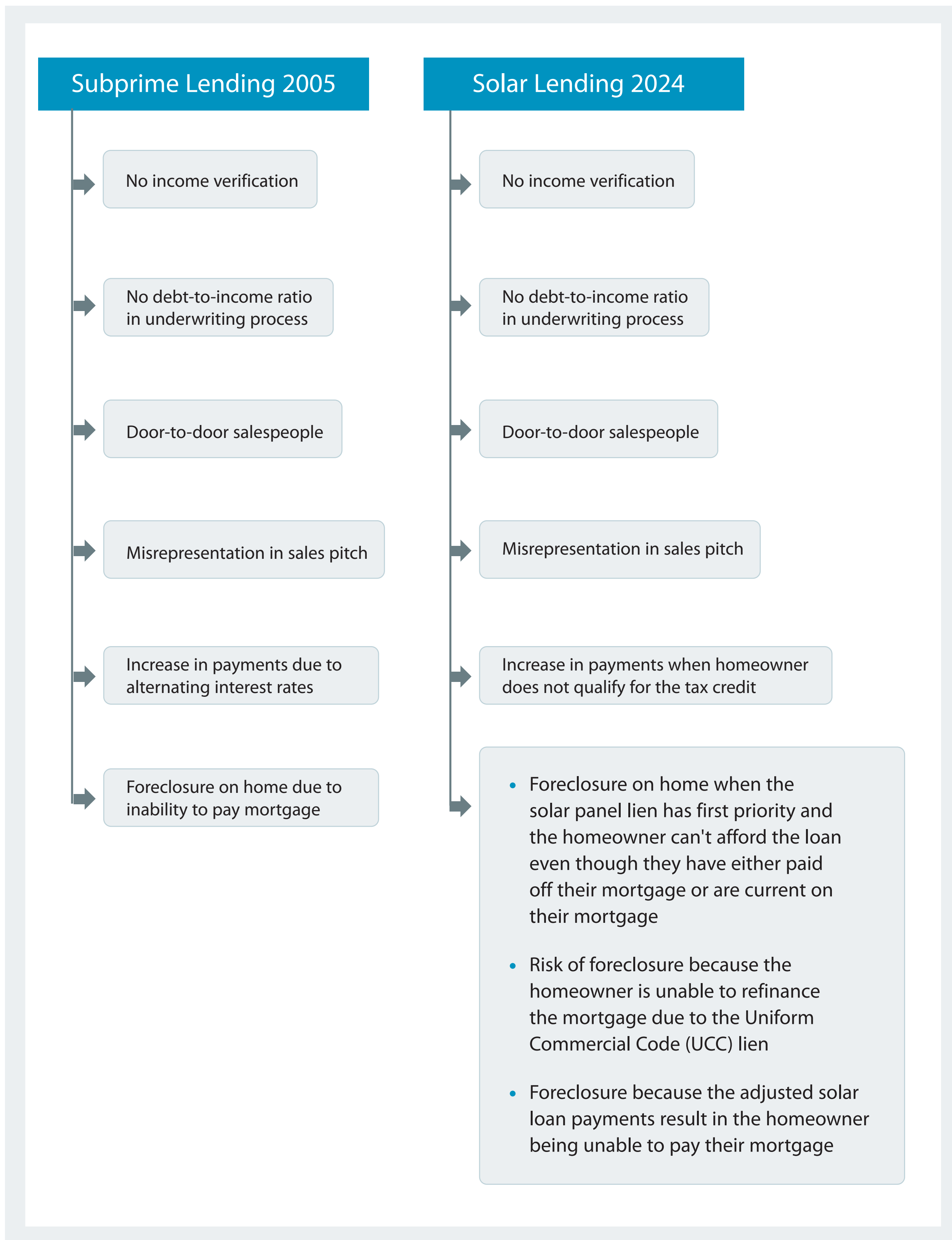
Solar finance has become an increasingly attractive option for homeowners seeking to reduce both their energy costs and carbon footprint by acquiring solar panels. Until 2016, most homeowners with solar panels entered into a lease agreement with a third party.[2] Beginning in 2016, however, consumers began opting to own solar panels outright as the financial sector increased access to loan products designed to enable these purchases. Estimates suggest that approximately 70% of all solar panel installations that occurred last year were paid for with a solar loan, and the solar financing market has the potential to impact millions of Americans.[3] As of 2023, 4.4% of all residential homes in the United States had solar power systems installed, with Hawaii, California, and Arizona having the greatest percentages of homes powered by residential solar systems.[4] Those figures coincide with a 51% increase in the overall solar market from 2022 to 2023.[5] Yet, to date, little publicly available analysis has been done on the nature and characteristics of the solar financing industry or its potential for consumer harm.[6] This report by the Center for Responsible Lending (CRL) seeks to change that.

CRL has analyzed contracts, securities statements, state and federal consumer complaint databases, newspaper articles, and lawsuits involving the nation's five largest residential solar finance companies: GoodLeap, Sunlight Financial, Mosaic, Sunrun, and Sunnova.[7] Together, these entities account for 80% of the residential solar loan market according to the most recently available public estimate.[8] The consumer harms we have observed by some companies can be separated into four categories: sales pitch, the contract, the installation, and general deceptive tactics.

GoodLeap, Sunlight Financial, Mosaic, Sunrun, and Sunnova together account for 80% of the residential solar loan market according to the most recently available public estimate.

An examination of the prevalence and types of harm occurring in the solar finance industry mirrors the abuses that led to the subprime mortgage crisis that occurred between 2007–2010 (see Figure 1). The subprime crisis was marked by an absence of regulation, perverse incentives between lenders and brokers, lack of meaningful underwriting requirements, adjustable payments, and predatory targeting of elderly consumers and consumers of color. These abuses contributed to a nationwide financial crisis that caused household wealth to decline by 39%.[9] An examination of the solar finance industry today reveals similar harms and produces flashbacks to this crisis. Seventeen years later, consumers are entering into solar financing agreements that are leaving them in a worse economic situation than they were in before the door-to-door sales person visited them. This solar debt elevates the risk that the consumer will lose their home to bankruptcy or foreclosure. Solar consumers are experiencing harms similar to the consumers in 2007 because elements of these products and process are identical.

Figure 1: Comparison of the Characteristics of Subprime Lending and Solar Lending



Door-to-door salespeople pitch the environmental and economic benefits of solar to potential customers. If the homeowner is unable to pay for the solar system upfront, installers and contractors offer their customers access to specialized loans for solar projects. Finance companies partner with different installers, with the loan application being entered through an online app. The homeowner provides background information such as name, the address for all property owners, homeowner status, gross income, and place of employment. The credit decision is instantaneous.

Each financing company has its own underwriting criteria. For example, one lender's underwriting process considers the "FICO score, income, bankruptcy status, delinquency status and bureau attributes and a recently launched behavioral scorecard. In terms of affordability, [this lender] tracks the debt-to-income (DTI) ratio but does not utilize it during the underwriting process."[10] By contrast, a different lender's underwriting process places a lot of value on the applicant's FICO score which "determines the maximum financed amount. Affordability checks are based on the debt to income (DTI) ratio, which includes all indebtedness on the credit report, but excludes the solar loan being financed (also excluded: charge offs, collections, judgements, installment accounts with less than 10 payments remaining and deferred student loans). . . . [F]or FICO scores above 700, the DTI is not considered."[11]

For sales contracts that include a financing contract, the installer is paid directly by the financier when the installer has reached specific milestones in the installation process. The two parties negotiate these milestones which have traditionally been immediately after consumer's right to rescind the transaction has ended, when the solar panels are placed on the roof, and when the system has connected to the grid.

A critical problem is that typically the price of the solar system is substantially inflated if a consumer finances a system. For solar panels that would cost $20,000 if purchased outright with cash, the price of the panels is increased to $25,000 or more if there is financing. This increase is considered a dealer's fee. This practice enables door-to-door sellers to falsely represent to borrowers that they are getting low-cost financing by having contracts include a low nominal payment rate, while, in fact, most of the financing cost is hidden in the inflated price of the solar panel system. The financing company retains this markup—the difference between the inflated amount of the loan and the true price of the product—for its profit.[12] This profit amount depends on the agreement between each installer and finance company. This amount is not revealed to the homeowner, and installers are often forbidden from disclosing this markup. To further reduce the finance company's risk and to ensure that it has liquidity to make future loans, most finance companies package their solar loans and sell them on the secondary market to investors. Finance companies will also use a secondary servicer who is responsible for billing and defaults.[13]

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The clean energy transition in the United States will not succeed and will not be equitable without broad adoption by low-to-moderate income (LMI) consumers. This will not occur if residents—particularly residents in native, rural, and urban communities—believe they will be taken advantage of by unscrupulous predatory lenders and their high-pressure installer sales teams, which currently operate without effective state and federal consumer protection regulations.

CRL has observed four categories of harms that both consumers and regulators should be conscious of when considering solar finance:

1. **Misleading Sales Practices:** These often involve misrepresentations regarding the cost-effectiveness of solar and/or the availability of tax benefits or government subsidies to pay for the product.

2. **Unscrupulous Installers:** With increasing frequency, installers supply incomplete or inadequate panel installations and fail to disclose "red zones" or restrictive net metering rules.

3. **Predatory Contract Clauses:** These include arbitration clauses, undisclosed financial incentives between lenders and salespersons, failing to inform the consumer of their right to rescind, and forgeries of consumer signatures.

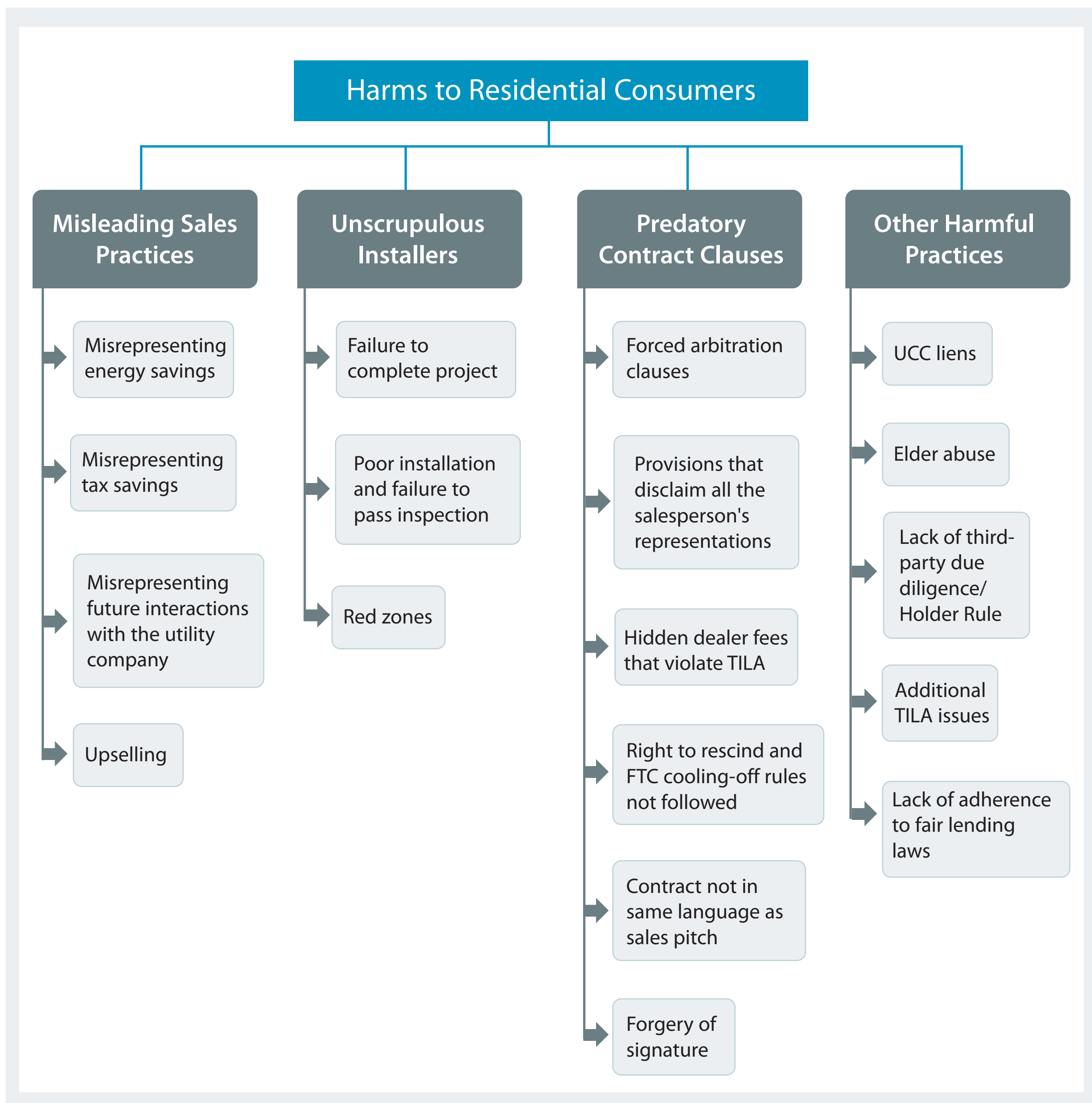
4. **Other Harmful Practices:** Examples include liens that impair the title to the home, elder abuse, and lack of third-party due diligence.

By highlighting categories of potential consumer harms in solar finance, CRL seeks to encourage the industry, policymakers, and regulators to adopt stronger and clearer protections for homeowners to eliminate predatory practices and abuses in an increasingly vital lending sector.

Things to Watch: Harms to Homeowners Who Purchase a Solar System

Over the last couple of years, a few State Attorneys General and individual homeowners have filed cases against bad actors in the solar installing and financing arenas.[14] These cases document multiple types of harm homeowners have suffered due to these companies' actions. There has yet to be a case brought by the Department of Justice or another federal agency against any solar company. The following harms exist across all states. Consumers that live in states with less consumer protection are harmed more than consumers who live in states with greater consumer protections.

Figure 2: Four Primary Categories of Harms to Residential Consumers from Solar Lending



The main sales model for most solar lending is door-to-door sales. The salesperson, acting as an independent contractor or employee of either the installer or financier, conducts a sales presentation at the homeowner's residence. The sales pitch informs the consumer about the benefits of installing a solar system, but far too often this information is exaggerated or false regarding both potential savings and positive environmental impact. Many of these salespeople have little training or oversight, which increases the opportunity for misrepresentation during the sales pitch.

Misrepresenting Energy Savings

Predatory sales presentations to homeowners have included the following statements:

- "There would be no cost to [homeowners] and they would realize substantial savings on their electric utility costs." [15]
- "The federal and state governments are helping homeowners receive solar panel programs in Maryland with $0 costs."[16]

These statements imply to the homeowner they have the opportunity to save a significant amount of money. Energy and monetary savings, however, are based on the system's actual output. If the installed system does not produce the amount of energy and savings promised, the homeowner pays more than expected, and the system does not save them money as is often promised.[17]

Misrepresenting Tax Savings

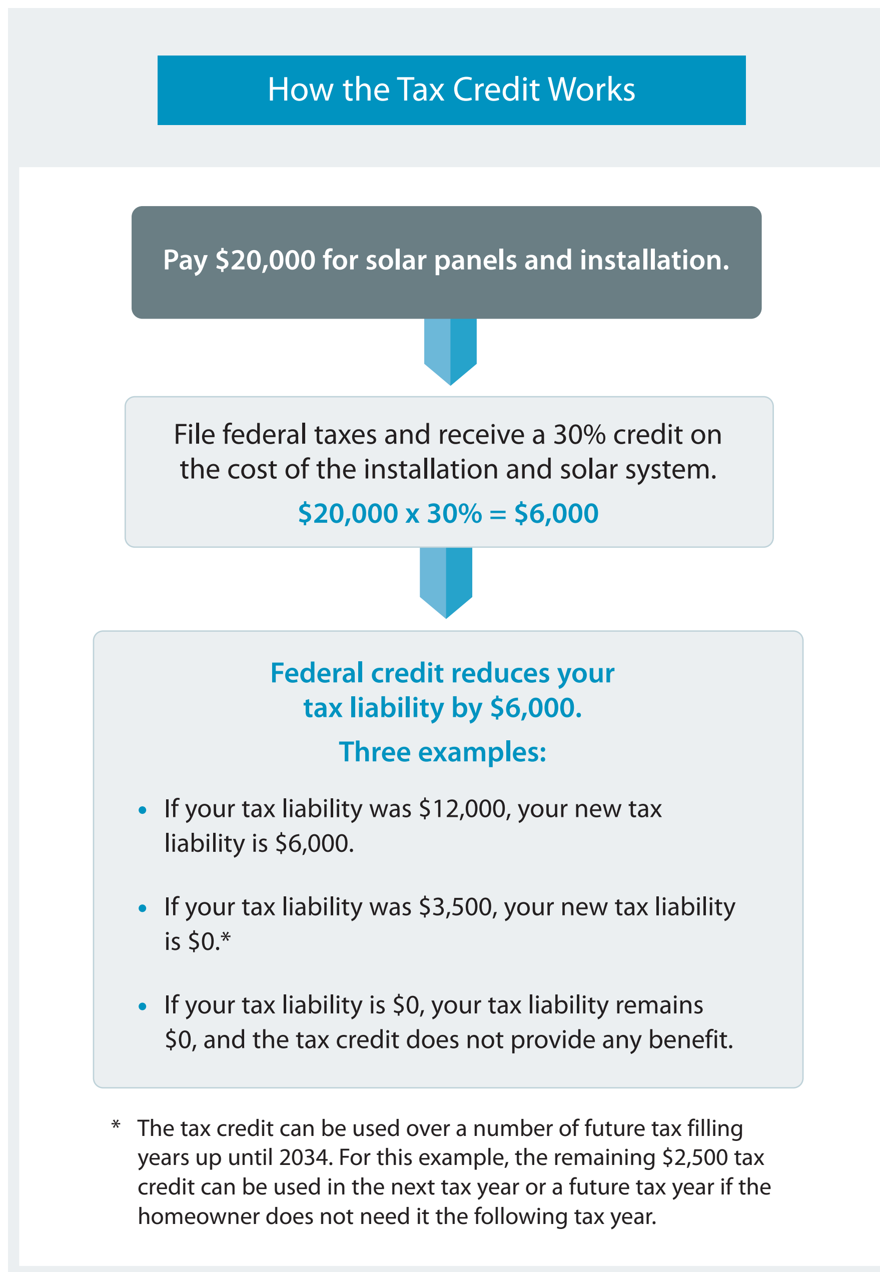
Misrepresentation of the tax credit is one of the biggest harms consumers experience because it affects the total amount of money they will pay for the solar system.[18] The federal residential clean energy credit covers up to 30% of the cost of installing a residential solar system between 2022–2032.[19] Some salespeople assert to homeowners that the government tax credit will allow them to pay nothing, or a reduced amount, for solar panels. There is no guarantee a homeowner will qualify for the tax credit. These federal tax savings are in the form of a non-refundable credit that *only* lowers a taxpayer's liability; it does *not* provide a cash refund if the consumer's liability is lowered to $0. Consumers may also falsely believe they will qualify for the credit because of the way the financing is structured.[20] (See Figure 3.) This structure causes many consumers to incorrectly believe they will receive the tax credit as a cash rebate from the federal government so they can pay the target balance by the prepayment deadline. Low-income homeowners often don't qualify for the tax credit because they don't have any tax liability. This results in low-income consumers paying the full amount for the solar system though it was advertised to them that they would only be responsible for 70%. (See Figure 4: Explanation of Solar Financing Tax Credit.)

Figure 3: A Case Study of Finance Structure

Loan Details
Term: 25 years
Interest rate: 1.98%
Amount borrowed: $33,427.85
Finance charge: $9,287.51
Total paid after 300 months: $42,715.36

Payment Schedule
OPTION A
Months 2–18: pay $55.16 (interest only)
Months 19–299: adjusted monthly payment of $148.35
Month 300: pay $146.45
OPTION B
Months 2–18: pay $55.16 (interest only)
Pay target balance by 18 months of $10,028.36
Months 19–300: adjusted monthly payment of $103.85

Figure 4: Explanation of Solar Financing Tax Credit



Misrepresenting Future Interactions with the Utility Company

A sales declaration to homeowners they will never get another utility bill is a misrepresentation. Many power companies require a monthly connection fee to connect solar panels to the grid. In some states, utility companies charge an extra fee to solar consumers only.[21] Most importantly, consumers will often continue to get utility bills, as the panels may not cover all their utility costs.

Upselling

Salespeople are often 100% commission based, and the commission is based on the cost of the system. Some salespeople try to upsell a larger system to the homeowner to receive a higher commission.[22] Homeowners lose money and their loan amounts are larger when they buy additional panels or other products they don't need—especially if they can't receive credit from the utility company for excess energy generation.[23]

Predatory Contract Clauses

All homeowners sign a sales contract with the salesperson to allow the installer to come onsite and install the solar panels. Often the salesperson presents the contract on a digital screen like a tablet, making it more difficult for the consumer to see the entirety of the contract at one time. The clauses in the contract dictate the terms of the agreement, and solar contracts typically have clauses that are harmful to consumers.

Forced Arbitration Clauses

All solar sales and financing contracts have forced arbitration clauses requiring consumers to use arbitration to resolve a dispute instead of having the right to go to a court of law. Arbitration can harm homeowners due to its opaque nature; the entire process is confidential. No one knows what claims are asserted and which corrective actions have been taken. In addition, homeowners often cannot afford an attorney or don't understand the need for an attorney to accompany them to the arbitration because they do not view the outcome of arbitration as being equivalent to that of a court of law. This decision not to hire an attorney puts homeowners at a disadvantage because arbitration decisions are not appealable. Arbitration can have upfront costs like filling fees or paying the arbitrator before the arbitration that some consumers cannot pay. Most important, these arbitration clauses all prohibit class actions, which are often the only way abuses can be addressed when it is too expensive for a consumer to hire an attorney to bring an individual claim.[24]

Provisions That Disclaim All the Salespersons's Representations

Typically, buried in the fine print of these contracts is a provision stating the consumer cannot rely on anything the salesperson tells them and that only the fine print of the contract applies. Given that solar systems and solar tax credits are complex subjects—and salespeople make oral representations about the contract and system details—this provision creates a situation ripe for abuse.

Inflated Cash Prices and Hidden Dealer Fees

Lenders and installers inflate the cost of solar loans and mislead borrowers with stated APRs that are too good to be true by including in the loan principal a "dealer fee" that is effectively a disguised finance charge. For example, a borrower may be offered a seemingly attractive interest rate of 1.99% on a $30,000 loan but will not be informed that the actual cost of the solar system installation is only $24,000, with the lender

pocketing the difference. Hidden finance fees harm homeowners because they are unaware of how much they could save if they financed the solar panels through alternative means without a dealer fee. Hidden finance fees likely violate the federal Truth in Lending Act (TILA), as well as other consumer protection laws prohibiting deceptive practices.[25,26]

Right to Rescind and Federal Trade Commission (FTC) Cooling-Off Rules Not Followed

The FTC and many states have cooling-off rules and/or right to rescind clauses that apply to door-to-door sales; these allow consumers to cancel a large consumer contract without penalty.[27] However, not all companies are observing these consumer protections. Companies have harmed homeowners by not informing them of their right to rescind, failing to provide correct documentation, and blatantly disregarding the implementation of this clause though the homeowner has activated it within the required time period.[28]

Contract Not in the Same Language as the Sales Pitch

When salespeople interact with homeowners who have limited English proficiency, they may decide to conduct the sales presentation in the homeowner's native language. If this occurs, the sales contract should be in the same language as the presentation so that the consumer understands what they are agreeing to.[29]

Forgery of Signature

There are several court cases asserting the forgery of the homeowner's signature on solar contracts by predatory salespeople.[30] Furthermore, there are situations where homeowners are unaware they have signed a contract due to their dementia.[31]

Unscrupulous Installers

In contrast to many other consumer goods, solar panels are complex systems, and standards and consumer protections are lacking for these sales. This complexity increases the homeowner's reliance on the installer, and the imbalance of information makes it easy for installers to take advantage of homeowners. The installer is responsible for installing the solar panels correctly, ensuring the system passes inspection, and making certain it is properly connected to the power grid.

Failure to Complete Project

Incomplete installation of solar panels results in either the panels not working at all, damage to the home, or only some of the panels working. The incompleteness of the system results in homeowners not getting the solar output they were expecting while still being required to pay for the system. Most service contracts contain workmanship warranties, but some installers do not fix these problems despite the warranties.[32]

Poor Installation and Failure to Pass Inspection

The final step in the installation process is connecting the solar panels to the grid, which requires an inspection by the utility company. The inability to connect to the grid due to improper installation or use of poor products results in these homeowners having to pay for non-working systems while also paying their regular utility bills.[33]

Red Zones

One of the advantages touted in the sales pitch regarding solar power is the opportunity to sell the extra energy created by a homeowner's solar system to the grid. This enables the homeowner to receive a further deduction in their energy costs for that month. In some locations, however, there is an overabundance of home solar systems creating energy and homeowners who want to sell it back to the grid. When the grid does not have the capacity to accept all of the available energy, this results in the creation of "red zones" or restrictive net metering rules.[34,35] These are zones where new solar systems are not allowed to connect to the grid or there are rules that limit the amount of energy the grid will accept. Salespeople may not disclose these limitations, and homeowners only become aware of these limitations after they buy a solar system that costs far more than they expected and generates far fewer benefits than represented.

Other Harmful Practices

There are other residential harms a homeowner may experience which can result in the foreclosure of the home, the inability to refinance, or paying more for the solar loan compared to other similarly situated borrowers who are not members of a protected class.

Uniform Commercial Code (UCC) Liens

Solar loans that are not PACE loans will most likely have a UCC lien applied to the solar panels to protect the financier's interest. The lien is technically not on the property, but it can muddy the title because some jurisdictions view the lien as applying to the whole property.[37] If this occurs, the lien must either be released or made subordinate to the mortgage or refinance.[38] The solar finance contract states that, for a refinance, the homeowner can request for the UCC filing to be removed, but this is at the *discretion* of the lender. If the lender chooses not to remove the UCC lien, the homeowner can be seriously harmed, as they are unable to take advantage of the economic savings from the refinance.

Many homeowners were granted PACE loans based on their home's equity rather than on their ability to pay, resulting in higher levels of defaults because homeowners need more monthly liquidity to pay for the loan than they have. Due to a PACE loan's lien priority, default on this type of loan results in foreclosure on the property—even if the homeowner was up to date on their mortgage. Most home loans are securitized through Fannie Mae and Freddie Mac, and they will not allow loans they finance to be on properties with PACE loans.[36]

Elder Abuse

Some solar companies' prey on homeowners who are in their 80s and 90s, convincing them to sign up for loans with terms of up to 25 years that they will not pay off in their lifetimes.[39] Furthermore, there have been salespeople who have persuaded older adults with dementia to sign a contract and then tried to enforce that contract.[40]

Lack of Third-Party Due Diligence and Holder Rule

Depository financial institutions must conduct due diligence on third parties they contract with to ensure compliance with regulations and make certain consumers are not harmed.[41] Non-depository financial institutions can be held responsible for fraudulent or deceptive good or services under the Holder Rule. In most instances of solar finance, this oversight is weak. This creates pressure for financing companies to tolerate installer abuses and pay the installer for unfinished work because the financier did not properly oversee the installer.[42]

Additional TILA Issues

The requirement to provide a TILA form explaining the details of a consumer loan has a monetary ceiling. This ceiling amount as of November 2023 is $69,500.[43] If the loan exceeds $69,500, the finance company is not required to provide a TILA form. Some solar loans can cost up to $100,000, resulting in a percentage of solar homeowners who are not required to receive a TILA form, creating a potentially predatory situation.[44]

Lack of Adherence to Fair Lending Laws

Solar loans must adhere to fair lending laws.[45] The elements of solar lending and its similarities to the sub-prime mortgage crisis raise a high likelihood of fair lending violations, specifically Equal Credit Opportunity Act (ECOA) violations. Black and Hispanic communities are often targeted for predatory products.

Conclusion

Current residential solar energy sales, financing, and installation providers operate under a business model that profoundly harms consumers. If left unchecked, these harmful practices will undermine homeowners' long-term investments in green energy and put families at risk of spending $15,000 or more on solar systems that:

- Fail to deliver promised performance;
- Increase—rather than decrease—homeowners' utility bills; and
- Put consumers at risk of losing their homes.

State Attorneys General, along with other federal and state regulators, must devote more enforcement resources to protect consumers from:

- Dishonest, predatory, and strong-arm sales tactics, including offering inflated estimates of future energy or tax savings;
- Hidden dealer fees that substantially increase the cost of systems bought on credit;
- Unscrupulous lender-installer partnerships that lock in their profits at the expense/disadvantage of the consumer; and
- Shoddy installers who, once paid, move on with no concern regarding whether the systems they sell are installed properly, permitted, and working as promised.

CRL will provide information to help policymakers understand the harms being inflicted upon consumers in the current solar energy financing market. We also will advocate for improved state and federal laws and regulatory oversight to ensure that green financing markets provide fair access and strong consumer protections.

Protecting homeowners from misleading sales methods, unscrupulous installers, predatory financing, and other deceptive tactics in the residential clean energy market will give families confidence that they can safely invest in solar energy and support the transition to green energy.[46]

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[18] A power purchase agreement may still be offered by some solar companies. This agreement results in the homeowner having little to no upfront costs because the company will design, install, and maintain the solar panels. The homeowner only pays for the power that is generated. However, the finance company gets the tax credit and "can sell renewable energy certificates." Therefore, these homeowners do not receive any tax saving. Salon. (2020, May 9). A major player in solar energy leaves some customers seething. Retrieved from https://www.salon.com/2020/05/09/a-major-player-in-solar-energy-leaves-some-customers-seething_partner/

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www.responsiblelending.org

The Center for Responsible Lending (CRL) is a non-partisan, nonprofit research and policy advocacy organization working to promote financial fairness and economic opportunity for all, end predatory lending, and close the racial wealth gap. CRL's expertise gives it trusted insight to evaluate the impact of financial products and policies on the wealth and economic stability of families of color, rural, women, military, low-wage, low-wealth, and early-career workers and communities. CRL is an affiliate of Self-Help, one of the nation's largest nonprofit community development financial institutions. We work in partnership with national and local consumer, faith, and civil rights organizations.

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