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CLARIFYING THAT AN INTEGRAL ANALYSIS IS NOT REQUIRED FOR STORAGE DEVICES TO BE *A PART OF* SOLAR ENERGY PROPERTY UNDER REGULATION § 1.48-9(d)(3), THROUGH IRS PUBLISHED GUIDANCE
OR
EXPANDING THE DEFINITION OF SOLAR ENERGY PROPERTY UNDER REGULATION § 1.48-9(d)(1) TO INCLUDE "EQUIPMENT AND MATERIALS … THAT USE SOLAR ENERGY DIRECTLY TO GENERATE ELECTRICITY *OR THAT STORE THE SOLAR ENERGY SO GENERATED"*

(IRC §48, TREAS. REG. §1.48-9(d)(1) and (3))

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[1] The comments contained in this paper are the individual views of the authors who prepared them, and do not represent the position of the California Lawyers Association.
[2] Although the authors and/or presenters of this paper might have clients affected by the rules applicable to the subject matter of this paper and have advised such clients on applicable law, no such participant has been specifically engaged by a client to participate on this project.

EXECUTIVE SUMMARY

Section 48(a)(3)(A)(i)[3] defines the term "energy property" to include any property that "uses solar energy to generate electricity." Regulation § 1.48-9(d)(1) clarifies that the term "energy property includes 'solar energy property' [which, in turn,] includes any equipment and materials (and those parts relating to the functioning of such equipment) that use solar energy directly to generate electricity." Regulation § 1.48-9(d)(3) further clarifies that "storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items" are part of "solar energy property." Because the regulations provide that a storage device needs to be "related to the functioning of" the qualifying solar property in order to qualify for the ITC, tax practitioners generally view the regulations as requiring the storage system to be considered "integral" to the solar property in order to qualify for the ITC. This requirement leaves open many questions as to what specific fact patterns will cause a storage device to qualify for the ITC. Without clear guidance, tax practitioners, developers, investors, and other financing parties are hesitant to pursue storage projects where there is a risk that the storage device will not qualify for the ITC. Uncertainty over how to satisfy the "integral" requirement is hindering the financing of storage devices associated with solar energy systems.

This paper argues that "solar energy property" under Regulation § 1.48-9(d)(1) is too narrowly defined and should be revised to include not only those equipment, materials and parts "that use solar energy directly to generate electricity" but also those equipment, materials and parts that store the solar energy so generated. Specifically, the following italicized phrase should be added to Regulation § 1.48-9(d)(1) to read: "energy property includes 'solar energy property' [which, in turn,] includes any equipment and materials (and those parts relating to the functioning of such equipment) that use solar energy directly to generate electricity or that store the solar energy so generated." Alternatively, the IRS could release interim guidance on the specific questions relating to storage described below.

[3] Unless otherwise noted, all Section references are to the Internal Revenue Code of 1986, as amended (the "Code") and all Regulation references are the Treasury Regulations promulgated under the Code.

DISCUSSION

I. THE TAX PROBLEM: CURRENT DEFINITION OF SOLAR ENERGY PROPERTY UNDER THE TREASURY REGULATIONS IMPOSES AN ARTIFICIAL STRAITJACKET ON SOLAR ENERGY PROPERTY AND CREATES UNNECESSARY REQUIREMENTS, THE RESULT OF WHICH IS CONTRARY TO LONG-STANDING U.S. SECURITY, ENERGY, CLIMATE AND TAX POLICIES TO PROMOTE THE RENEWABLE SECTOR.

Section 48(a) provides for an energy investment tax credit ("ITC") equal to 30 percent of the cost basis of qualifying energy property placed in service during the taxable year. Section 48(a)(3)(A)(i) defines the term "energy property" to include any property that "uses solar energy to generate electricity."

Regulation § 1.48-9(d)(1)[4] clarifies that the term "energy property includes 'solar energy property' [which, in turn,] includes any equipment and materials (and those parts relating to the functioning of such equipment) that use solar energy directly to generate electricity."

Regulation § 1.48-9(d)(3) further clarifies that "storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items" are part of "solar energy property."[5]

Under the definition currently set forth in Treas. Reg. § 1.48-9(d)(3), storage devices are *a part of* "solar energy property" and not a solar energy property in its own right.

Many tax practitioners interpret being *a part of* as possibly requiring an *integral* analysis, which might require the practitioner to

[4] Regulation § 1.48-9 was issued under Section 48 as in effect prior to November 5, 1990.

[5] "Solar energy property does not include equipment (auxiliary equipment) . . . that use a source of power other than solar or wind energy to provide usable energy. Solar energy property does include equipment . . . which is utilized by both auxiliary equipment and solar energy equipment (dual use equipment). Such equipment is solar energy property (i) only if its use of energy from sources other than solar energy does not exceed 25 percent of its total energy input in an annual measuring period and (ii) only to the extent of its basis of cost allocable to its use of solar or wind energy during an annual measuring period." Regulation § 1.48-9(d)(6).

consider such factors as whether the storage device is placed in service at the same time, by the same owner, and located physically close to the solar energy property, in order to be *a part of* the solar energy property (although, as discussed below, there are two private letter rulings ("PLR") which provide some comfort on the timing question). Also, in addition to storing energy from solar energy property, storage devices can be used for various purposes (such peak-shaving, time of use offset, grid management, or limiting curtailment), and the use of a storage device for these other purposes can raise a question as to whether the storage device is integral to the solar energy property. These requirements are not explicitly stated in the Code or the Treasury Regulations and should not be required.[6]

The uncertainty created by whether an integral analysis is required by Treas. Reg. § 1.48-9(d)(3) is hampering the financing to enable the market deployment of storage devices; with only a very short runway remaining on the ITC – the full 30 percent tax credit is available only for projects beginning construction by the end of 2019 – it is crucial that Congress and Treasury clarify the requirements of Treas. Reg. §§ 1.48-9(d)(3) and 1.48-9(d)(1) in order for market participants to efficiently scale the storage market, driving down the cost of storage devices so every homeowner with a solar system can rely on a storage device long after sunset. In so doing, we unleash market forces to realize the full potential of solar energy, we further long-standing U.S. policy to promote energy independence and climate friendly policies, and we fulfill Congressional vision underlying the enactment and the repeated renewal of Section 48.

[6] We note that Regulation § 1.48-1(d)(5)(i) provides that: "If property (other than a building and its structural components) constitutes a research or storage facility and if it is used in connection with an activity specified in subparagraph (1) of this paragraph, such property may qualify as section 38 property even though it is not used as an integral part of such activity. Examples of research facilities include wind tunnels and test stands. Examples of storage facilities include oil and gas storage tanks and grain storage bins. Although a research or storage facility must be used in connection with, for example, a manufacturing process, the taxpayer-owner of such facility need not be engaged in the manufacturing process." Arguably, Regulation § 1.48-1(d)(5)(i) could be read to mean that no integral analysis is required under Regulation § 1.48-9(d)(3).

II. THE CHALLENGES TO SCALING SOLAR ENERGY PROPERTIES AND THE SOLUTIONS AND EFFORTS PROVIDED BY DIFFERENT BRANCHES OF THE U.S. GOVERNMENT.

There are two main challenges to meaningfully scaling solar energy for homeowner use. First, there is a financing issue. Residential solar is a capital and labor intensive business. Solar energy system prices vary state-by-state and according to size, and each system is bespoke and individually-designed base on factors such as roof tilt, roof materials, sun exposure, and shading. The average price for a system was approximately $25,000 per 10 kW rooftop installation in 2015.[7] Operational and maintenance costs also accompany the system during its useful life.[8] Given the high up-front cost, the slow rate of return over the long useful life of the system, and the intimidation of purchasing an electrical system with maintenance needs, few Americans can afford, or dare to, purchase a solar energy system outright. The 2014 median U.S. household income was $53,657, placing solar well beyond the reach of most Americans.[9]

This first challenge – solar financing – has largely been met through the efforts of the U.S. Congress and the U.S. Department of Energy. As discussed below, Congress has provided consistent and long-standing support for investment tax credits through repeated renewals and extensions of the ITC. The U.S. Department of Energy, through the SunShot Initiative, the National Renewable Energy Lab ("NREL") and the Lawrence Berkeley National Laboratory have provided the thought leadership in tracking, structuring, and analyzing the renewable market. The results of these market-oriented incentives are private sectors innovation – such as third-party owned solar lease products with no money down contracts to attract customers.

As a result of the governmental support, U.S. residential solar has demonstrated impressive growth rates over the last ten years. Total solar generation has increased over fifty times since 2005, and

[7] Feldman, Boff and Margolis, "SunShot Initiative Q3/Q4 2015 Solar Industry Update," 41.
[8] Francis M. O'Sullivan and Charles H. Warren, "Solar Securitization: An Innovation in Renewable Energy Finance," July 2016, MIT Energy Initiative, p. 6. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf.
[9] US. Bureau of the Census, "Real Median Household Income in the United States."

residential solar installed capacity has grown seventy seven times.[10] From 2014 to 2015, the sector witnessed capacity growth over 60 percent.[11]

The second challenge is the intermittency of energy flows generated by solar energy and the need for storage. Solar energy is cyclical and unpredictable; for the average homeowner, the sun shines when he or she is at work during the day and does not utilize substantial household energy, so the solar energy produced during the day is either wasted or sold back to the grid in jurisdictions where net metering is available. However when that same homeowner comes back home in the early evening and begins using the multitude of electronic devices which power American evening routines (including lights, televisions, kitchen appliances, washers/dryers, etc.), the sun is setting and unavailable to satisfy household energy demand. Many in today's renewables industry believe that for solar (and other intermittent resources, such as wind) energy to realize its full potential, solar panels will need to be accompanied with battery storage devices in order to align energy needs and energy consumption for the average household. When the U.S. Department of Energy launched the SunShot Initiative in 2011, its focus was on solar installation, not storage devices, because the technology, price and design for storage devices were not ready for mass production at that time. Yet in less than 6 years, by 2017, the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, would declare the SunShot goal – enabling solar electricity costs to be competitive with conventionally generated electricity by 2020 – a success, and three years ahead of schedule.[12] The Department of Energy proudly declared that while "solar energy comprised less than 0.1% of the U.S. electricity supply with an installed capacity of just 3 gigawatts" in 2011, as of 2017, "solar now supplies more than 1% of U.S. electricity demand with an installed capacity of more than 47 gigawatts."[13]

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[10] Francis M. O'Sullivan and Charles H. Warren, "Solar Securitization: An Innovation in Renewable Energy Finance," July 2016, MIT Energy Initiative, p. 4. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf (citing Feldman, Boff, and Margolis, "SunShot Initiative Q4 2015/Q1 2016 Solar Industry Update," 25).

[11] SEIA/GTM Research, "Solar Market Insights 2015 Q4."

[12] "SunShot 2030: New Solar Opportunities for a New Decade". https://www.energy.gov/eere/solar/SunShot-2030 (last visited April 5, 2018).

[13] Id.

As the installed price of a solar energy system continues to drop, the Department of Energy and many in the solar industry have now turned to storage as the next frontier. In January 2016, the SunShot Initiative launched the Sustainable and Holistic Integration of Energy Storage and Solar PV Program ("SHINES"), to directly address the coupling of electricity storage with a renewable power source.[14]

With solar storage as the new frontier and challenge, the time has come for thought leaders to consider whether the laws drafted in 1981, and the interpretations thereunder, still make sense – whether they continue to further Congressional vision and U.S. policy goals, or whether they have become a legal albatross hampering innovation and growth. The technology for storage for residential use has developed to the point where it is now poised for market deployment. While the deployment for new storage systems, in conjunction with a new solar energy system, has largely followed the same financing and monetization model, the retrofitting of an existing solar energy system with new storage capacity has encountered tax obstacle. As described above, the seeming requirement that the storage system be *a part of* the underlying solar energy property – that they be installed at the same time, by the same owner, and co-located – is hampering the deployment of storage devices on existing solar energy properties, serving no obvious purposes while ultimately undermining U.S. policy goals.

A. Long-standing Congressional Support and Governmental Efforts to Incentivize the Deployment of Solar Energy Property in the United States Through the Investment Tax Credit.

[14] "EERE SunShot's SHINES Program: Enabling a Rapidly Solarizing Electricity Grid Through Energy Storage", January 19, 2016. https://www.energy.gov/eere/articles/eere-SunShot-s-shines-program-enabling-rapidly-solarizing-electricity-grid-through (last visited April 5, 2018)

1. Since the 1970s Federal Tax Policy Has Sought to Reduce Dependence on Imported Oil and Enhance National Security Through Tax Incentives to Encourage the Deployment of Renewable and Energy Efficient Technologies.

Since the 1970s, energy tax policy in the United States has attempted to achieve two broad objectives. First, policymakers have sought to reduce oil import dependence and enhance national security through a variety of domestic energy investment and production tax credits to support domestic energy production. Second, environmental concerns have led to tax incentives for a variety of renewable and energy efficiency technologies via the Code.[15] Tax incentives are a favored tool to achieve these goals because they are uniquely positioned to promote renewable energy production and development, which address both environmental and energy security concerns. As such, Congress has repeatedly enacted and extended tax credits to achieve U.S. policy objectives.[16]

The energy credit under IRC § 48 was first enacted as part of the Energy Tax Act of 1978 because Congress recognized that investments in solar energy property were not economically viable without added incentives.[17] When the energy credit was first enacted in 1978, Congress made clear that an incentive was necessary to encourage the purchase and installation of solar equipment.[18] As originally enacted, the credit was set at 10 percent for solar, wind, biomass, and geothermal resources.[19] In that same year, the House Committee on Ways and Means expressed a desire to support renewable energy projects, declaring that it "recognizes that solar … energy equipment technology is … at an early stage of commercialization" and that "there is a need to encourage the purchase and installation of [such] equipment."[20]

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[15] Molly F. Sherlock, "Energy Tax Policy: Historical Perspectives on and Current Status of Energy Tax Expenditures," Congressional Research Service, May 2, 2011.
[16] For a detailed history of U.S. energy tax policy, *see id.* at 2-10.
[17] In 1977, Senator Charles H. Percy argued in favor of enacting the credit. He stated that "we need added incentives to … go toward renewable sources that are not economical today in the marketplace. Solar is very expensive.… It is very hard to install a cost-effective system.… Very difficult to justify it even on a 20-year payoff basis. So we need added incentives to do that." See 123 CONG. REC. 35,515 (1977).
[18] *See* H. Rep. 496 (III), 95th Cong., 1st Sess. 41 (1978).
[19] Pub. L. No. 95-618, § 301, 92 Stat. 3174, 3194 (1978).
[20] H.R. REP. NO. 496(III), 95th Cong., 1st Sess. 41, *reprinted in* 1978 U.S.C.C.A.N. 8304, 8335.

Similarly, in connection with the extension of the energy investment tax credit in 1992, the House Committee on Ways and Means stated that it "believes it is important to provide tax-based support for the development of alternative energy sources."[21]

Rising oil prices in the early 2000s led to a renewed push for comprehensive energy legislation in the 107th and 108th Congresses. While comprehensive energy legislation was debated and otherwise stalled, energy tax policy goals were pursued through smaller provisions in tax relief and jobs bills such as the Working Families Tax Relief Act of 2004[22] and The American Jobs Creation Act of 2004.[23]

The Energy Policy Act of 2005 was the culmination of efforts for comprehensive energy legislation that began in 2001.[24] There, Congress increased the energy investment tax credit for solar energy property from 10 percent of a taxpayer's basis in its solar energy property to 30 percent of such basis for periods ending before January 1, 2008.[25] Spurred by rising energy prices and growing dependence on foreign oil, the law was shaped by competing concerns about energy security, environmental quality, and economic growth.[26]

In 2006, Congress extended the energy investment tax credit for solar energy property for an additional year,[27] and in 2008, Congress extended the credit again for periods ending before January 1, 2017.[28] More recently, in 2015, Congress extended the credit again for projects that commence construction before January 1, 2022 and are

[21] H.R. REP. NO. 474(VI), 102nd Cong., 2d Sess. 47, *reprinted in* 1992 U.S.C.C.A.N. 2232, 2258.
[22] P.L. 108-311. This act retroactively extended four energy tax subsidies that had been allowed to expired: (1) the tax credit for energy produced using renewable resources (PTC), (2) the suspension of the 100 percent net income limitation for the oil and gas percentage depletion allowance, (3) the tax credit for electric vehicles, and (4) the deduction for clean fuel vehicles.
[23] P.L. 108-357. This act included tax credits for alcohol fuels and biodiesel and increased the number of technologies that were eligible for the renewable energy production tax credit (specifically, open-loop biomass, geothermal energy, solar energy, small irrigation power, landfill gas, and municipal solid waste combustion).
[24] Molly F. Sherlock, "Energy Tax Policy: Historical Perspectives on and Current Status of Energy Tax Expenditures," Congressional Research Service, May 2, 2011, p. 6.
[25] P.L. 109-58, § 1337, 119 Stat. 594, 1038 (2005).
[26] Id.
[27] P.L. 109-432, Div. A, § 207(1), 120 Stat. 2922, 2945–46 (2006).
[28] P.L. 110-343, Div. B, § 103(a)(1), 122 Stat. 3765, 3811 (2008).

placed in service before January 1, 2024.[29] Each of these extensions, under both Republican and Democratic leadership, is indicative of Congressional determination that tax-based support for the development of alternative energy sources continues to be necessary.

In addition, as part of the American Recovery and Reinvestment Act of 2009 (the "2009 Act"),[30] Congress took additional steps to make investments in solar energy property more attractive. For example, the 2009 Act eliminated certain restrictions on claiming the energy investment tax credit with respect to property financed by "subsidized energy financing" (i.e., financing provided under a federal, state, or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy) or the proceeds of a tax-exempt "private activity bond."[31] Also, the 2009 Act authorized the Secretary of the Treasury to provide cash grants to taxpayers in the amount of, and in lieu of, the energy investment tax credits that such taxpayers would otherwise be eligible to claim with respect to certain projects placed in service during 2009 or 2010 or for which construction commenced in 2009 or 2010.[32] The legislative history makes clear that Congress understood that some investors in renewable energy projects had suffered economic losses that prevented them from benefiting from the credit and, therefore, authorized the cash grant program to ensure continued investment in renewable energy facilities.[18] The legislative history also makes clear that Congress intended the cash grant program to "mimic the operation of the [energy] credit."[33]

As this history demonstrates, since 1978 renewable energy incentives (including the energy investment tax credit) have been regularly supported and extended through legislation approved by every President from Jimmy Carter through Donald Trump, and as recently as February 2018.[34] The purpose of the credit (i.e., to induce

[29] P.L. 114-113, Div. P, § 303, 129 Stat. 2242, 3039 (2015).
[30] P.L. 111-5, 123 Stat. 115 (2009).
[31] *Id.* at Div. B, § 1103(b), 123 Stat. at 320.
[32] *Id.* at § 1603, 123 Stat. 364. The 2009 Act subsequently was amended to authorize the Secretary of the Treasury to also provide cash grants with respect to certain projects placed in service during 2011 or for which construction commenced in 2011. The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, § 707, 124 Stat. 3296, 3312 (2010).
[33] H.R. REP. NO. 8(I), 111th Cong., 1st Sess. 165-67 (2009).
[34] *See, e.g.*, The Tax Reform Act of 1986, Pub. L. No. 99-514, § 421, 100 Stat. 2085, 2229 (1986); The Energy Policy Act of 1992, Pub. L. No. 102-486, § 1916, 106 Stat. 2776, 3024 (1992); The Energy

investors to invest in solar energy property because such investments are not otherwise economically viable) was reiterated in connection with certain of those extensions.[35] This long-standing federal tax policy to encourage the deployment of renewable energy property, including solar property, remains a key part of energy tax policy today.

2. The U.S. Department of Energy Actively Supports Congressional Vision in the Renewable Sector Through the SunShot Initiative and the SHINES Program.

In 2011, the U.S. Department of Energy launched the SunShot Initiative as "a national effort to support solar energy adoption by making solar energy affordable for all Americans through research and development efforts in collaboration with public and private partners. The SunShot Initiative has as one of its goals to make solar energy fully cost-competitive with traditional energy sources by 2020. SunShot also aims to reestablish American technological and market leadership, improve the nation's energy independence, and strengthen U.S. economic competitiveness while fighting climate change. To these ends, SunShot funds cooperative research, development, demonstration, and deployment projects by private companies, universities, state and local governments, nonprofit organizations, and national laboratories to drive down the cost of solar electricity."[36]

Improvement and Extension Act of 2008, Pub. L. No. 110-343, Div. B, § 103, 122 Stat. 3765, 3811 (2008); Consolidated Appropriations Act, 2016, Pub. L. No 114-113, § 303, 129 STAT. 2242, 3039 (2015); Bipartisan Budget Act of 2018, Pub. L. No. 115-123, Div. D, § 40411 (2018).

[35] For example, in connection with the extension of the credit in 1986 – when Congress repealed the other investment tax credits – the staff of the Joint Committee on Taxation wrote that:

> Even though the regular and energy investment tax credits generally are repealed as part of the process of broadening the income tax base and increasing the importance of economic and market variables in making investment decisions, **Congress believes that it is desirable to retain energy tax credits for certain renewable energy source property in order to maintain an after-tax price differential between renewable and fossil fuel sources**. The steep decline in 1986 in petroleum prices has eliminated the incentive to purchase or produce the equipment required to exploit renewable fuel sources. Without the offsetting stimulus from the tax credit to use or produce renewable fuels, the experience gained in the production and use of such fuels and the technological competence developed in their production during the past decade will dissipate and will not be readily available if a fossil fuel shortage recurs. **The retained credits are extended through 1987 or 1988 at progressively reduced rates to permit renewable energy technologies to phase into the experience of operating in competitive markets.**

STAFF OF THE JOINT COMM. ON TAXATION, 100TH CONG., 1ST SESS., GENERAL EXPLANATION OF THE TAX REFORM ACT OF 1986, at 204-05 (Comm. Print 1987) (emphasis added).

[36] U.S. DEPARTMENT OF ENERGY, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, "About the Solar Energy Technologies Office", https://energy.gov/eere/SunShot/about-SunShot-initiative (last visited

SunShot supports research that enables it to publish yearly analyses of the pricing trends in the installation and deployment of solar energy systems and is widely used in the industry to understand the cost of solar energy systems.

As discussed, the technology for solar energy storage has reached a pivotal moment. In response, the U.S. Department of Energy launched the SHINES Program in 2016 to develop and demonstrate integrated PV and energy storage solutions are scalable, secure, reliable and cost-effective.[37] SHINES is a part of the Energy Department's Grid Modernization Initiative, which aims "to accelerate the strategic modernization of the U.S. electric power grid and solve the challenges of integrating conventional and renewable sources, while ensuring a resilient energy system combining energy storage with central and distributed generation."[38]

These are worthy goals. Given modern society's ever-increasing dependency on electricity, as we switch from fiber-optic landlines for our telephones to digital telephones and iPhones, from fossil fuel cars to electric vehicles, the early success of the SunShot Initiative demonstrates our government's ability to work together to provide coherence to our policies.

3. Long-standing U.S. Environmental Policy Also Supports the Deployment of Renewable Energy.

U.S. environmental policy also broadly supports renewable energy investment. Clean energy leadership was also one of the Obama Administration's goals, so much so that the Obama Administration created a cross government partnership – the Clean Energy Savings For All Initiative – between the Departments of Energy (DOE), Housing and Urban Development (HUD), Agriculture (USDA), Health and Human Services (HHS), Veteran's Affairs (VA), and the Environmental Protection Agency (EPA) to increase access to solar energy and promote energy efficiency across the United States

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(continued) April 5, 2018); U.S. DEPARTMENT OF ENERGY, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY "Goals of the Solar Energy Technologies Office", https://www.energy.gov/eere/solar/goals-solar-energy-technologies-office (last visited April 5, 2018).

[37] https://www.energy.gov/eere/solar/sustainable-and-holistic-integration-energy-storage-and-solar-pv-shines

[38] Id.

and, in particular in low- and moderate- income communities. This initiative aimed to install 100 megawatts of renewable capacity across federally subsidized housing by 2020, permit 10 gigawatts of renewable projects on public lands by 2020, deploy 3 gigawatts of renewable energy on military installations by 2025, and double wind and solar electricity generation in the United States — once again — by 2025.[39]

Since 2009, the U.S. has increased solar electricity generation by more than tenfold, and tripled electricity production from wind power. According to the US Energy Information Agency, in 2016, distributed solar represented more than 10 percent of the total electricity capacity additions in the U.S. That same year, solar energy represented more than one-third of the total new capacity built in the U.S., surpassing both wind and natural gas, accounting for 8.3 million more homes powered by the sun.[40] The environmental impact of the SunShot Initiative alone, based on NREL's recently released report on the environmental benefits of solar, is that achieving the SunShot goal could save an estimated $400 billion in health and environmental benefits by 2050.[41]

A comprehensive study by the Lawrence Berkeley National Laboratory, titled, "Health and Environmental Benefits of Wind and Solar Energy in the United States, 2007-2015", published in January 2017, actually quantified the total environmental and health benefits of the wind and solar sector. It concluded a climate savings of over $30 billion, air pollution savings of over $60 billion, and avoid premature mortalities of 8,000 during the period from 2007-2015.[42]

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[39] U.S. GOVT., WHITE HOUSE, OFFICE OF THE PRESS SECRETARY, "FACT SHEET: Obama Administration Announces Clean Energy Savings for All Americans Initiative," January 19, 2016. https://obamawhitehouse.archives.gov/the-press-office/2016/07/19/fact-sheet-obama-administration-announces- clean-energy-savings-all (last visited April 5, 2018); see also U.S. GOVT., WHITE HOUSE, "Accelerating Clean Energy Leadership". https://obamawhitehouse.archives.gov/energy/climate-change (last visited April 5, 2018).

[40] Id.

[41] Ryan Wiser et al, "On the Path to SunShot: The Environmental and Public Health Benefits of Achieving High Penetrations of Solar Energy in the United States". https://www.nrel.gov/docs/fy16osti/65628.pdf

[42] "The Health and Environmental Benefits of Wind and Solar Energy in the United States, 2007-2015," by Dev Millstein, Ryan Wiser, Mark Bollinger, Galen Barbose at the Lawrence Berkeley National Laboratory, January 2017, p. 48. http://eta-publications.lbl.gov/sites/default/files/health_and_environmental_benefits_wind_solar_2007-2015_jan2017.pdf.

4. Courts Have Acknowledged Congressional Intent to Incentivize the Development of Renewable Energy.

Within this broad context of U.S. energy and environmental policy to encourage investment in renewable energy, the courts have acknowledged that the United States has used the investment tax credit to promote capital investment in targeted industries and activities.[43] The courts also recognize the Congressional purpose behind the energy credit, citing conference committee reports relating to the stated purpose of the investment tax credit "to encourage modernization and expansion of the Nation's productive facilities and to improve its economic potential by reducing the net cost of acquiring new equipment."[44] The investment tax credit provides a dollar for dollar reduction in income taxes otherwise owed by a taxpayer.[45] The credit thus constitutes a powerful financial incentive for taxpayers to make capital investments in those targeted industries and activities.[46] The 9th Circuit Court discussed at length the legislative history and the intent of the ITC to induce taxpayers to invest in solar energy property because such investments would otherwise not be made because of their low anticipated profitability.[47]

B. The Market Has Responded to the Governmental Support and Created Innovative Products – Leases and Power Purchase Agreements – and Financing Solutions – Monetization of the ITCs – to Scale Solar Energy Properties for Market Consumption.

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[43] *Hawaiian Indep. Refinery, Inc. v. United States*, 697 F.2d 1063, 1064 (Fed. Cir. 1983)*; Pac. Far. E. Line, Inc. v. United States*, 544 F.2d 478, 483 (1976) (ITC was adopted "to encourage modernization and expansion of the Nation's productive facilities and to improve its economic potential by reducing the net cost of acquiring new equipment" (quoting H.R. Rep. No. 87-2508, at 3734 (1962) (Conf. Rep.)).

[44] Johnston v. C.I.R., 114 F.3d 145, 147 (10th Cir. 1997) (citing H.R. Conf. Rep. No. 87-2508 (1962), *reprinted in* 1962 U.S.C.C.A.N. 3732, 3734.

[45] *See* 26 U.S.C. § 38(a), (b)(1); *Salomon Inc. v. United States*, 976 F.2d 837, 839 (2d Cir. 1992) ("The investment tax credit reduced dollar-for-dollar the tax due . . . .").

[46] *See, e.g.*, 26 U.S.C. §§ 40 (ethanol), 40A (biodiesel), 41 (research activities), 42 (low-income housing), 43 (enhanced oil recovery), 45C (drugs for rare diseases), 45D (low-income community investments), 45E (small employer pension plan startup costs), 45F (employer-provided child care), 45G (railroad track maintenance), 45J (advanced nuclear power plants), 47 (historic buildings), 48 (cogeneration facilities), 48A (advanced coal projects), 51 (work opportunity credit).

[47] *Sacks v. C.I.R.*, 69 F.3d 982, 991 (9th Cir. 1995), *rev'g* T.C. Memo. 1992-596. The Ninth Circuit's opinion discussed at length the legislative history to the enactment of the energy credit.

In 1981, when the current regulations under Section 48 were enacted,[48] the renewable energy sector, including the residential solar sector, was insignificant. Solar panels were more likely to be used by NASA to power satellites rather than by the average homeowner to power her home. However, the power of the sun as an energy source was already well understood by top scientists. In fact, it was NASA's need to power space explorations that contributed to innovations in solar panels.[49]

As discussed, to scale solar panels from space satellites to homeowner's roofs, the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy launched the SunShot Initiative in 2011. It set the goal of making solar electricity cost-competitive with conventional sources of electricity by 2020, by reducing the costs of solar energy by 75 percent.[50]

But with significant up-front costs to install solar panels, door-to-door sale of solar panels to homeowners, by itself, was unlikely to create the scale necessary to reduce the costs of solar energy by 75 percent. The median reported U.S. residential system had a capacity of approximately 6.1 kW, which cost $44,000 in 2010 (and dropped significantly to $26,000 by 2014,[51] and was cost prohibitive to all but the most affluent homeowners.

An MIT study on innovation in renewable energy finance compared residential solar to another expensive yet ubiquitous U.S. household purchase, that of the automobile.[52] In 2015, the average MSRP for a sedan in the United States was about $33,500, but only

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[48] Treas. Reg. § 1.48-9, T.D. 7765, 46 FR 7287 (1/19/81).
[49] "Benefits Stemming from Space Exploration", September 2013, International Space Exploration Coordination Group. https://www.nasa.gov/sites/default/files/files/Benefits-Stemming-from-Space-Exploration-2013-TAGGED.pdf
[50] U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy websites: https://www.energy.gov/eere/solar/SunShot-initiative and https://www.energy.gov/eere/solar/path-SunShot
[51] David Feldman and Mark Bolinger, "Emerging Opportunities and Challenges in Financing Solar", U.S. Department of Energy, SunShot Initiative, Section 3.3 Historical Financing Methods in the Residential Market, p. 18. https://www.nrel.gov/docs/fy16osti/65638.pdf. (citing Barbose, Galen, and Naim Darghouth. 2015. *Tracking the Sun VIII: An Historical Summary of the Installed Price of Photovoltaics in the United States from 1998 to 2014.* Berkeley, CA: Lawrence Berkeley National Laboratory.)
[52] Francis M. O'Sullivan and Charles H. Warren, "Solar Securitization: An Innovation in Renewable Energy Finance," July 2016, MIT Energy Initiative, p. 6. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf.

approximately 14 percent of consumers bought cars with cash.[53] Instead, leases and loans dominated with 31 and 55 percent of the market, respectively.[54]

Similar to the auto market, residential solar providers have created third-party owned financing models, with project developers like Sunrun, SolarCity,[55] SunEdison,[56] Sungevity,[57] NRG Home Solar,[58] and OneRoof Energy[59] offering leases and power purchase agreements to homeowners so that they would only have to pay a monthly fee for the long-term lease of the solar energy systems (or for the purchase of electricity generated under the solar energy systems). In addition to installing solar panels, these developers also provide solar as a service, selling, financing and maintaining the solar system for customers.

Project developers, however, do not have sufficient capital to provide the up-front capital to purchase and install solar energy systems on homes (and wait for monthly lease payments to recoup their costs over 20 years), nor do they have the taxable income necessary to absorb the sizable investment tax credits offered by Congress. Banks, however, do have the sizable capital needed to absorb the up-front costs of solar energy systems, and the taxable income to make use of the investment tax credits.

Given this economic reality, policy thinkers envisioned the use of common tax-equity financing structures to capture the incentives, particularly the sizable federal tax incentives, in the most efficient manner possible.[60] These structures – sale leaseback, partnership flip, and inverted lease – have a long history in non-solar sectors such as wind energy (since the 1980s), traditional energy generation (in the 1980s), low-income housing (since the 1980s), and rail cars (in the

[53] Id. (citing Kelley Blue Book, "New-Car Transaction Prices Jump More than 3 Percent in August 2015."
[54] Id. (citing Zabritski, "Experian State of the Automotive Finance Market: A Look at Loans and Leases in Q1 2016," 11.
[55] SolarCity was founded in 2006 and purchased by Tesla in 2016.
[56] SunEdison entered the solar market in 2006 and filed for bankruptcy on April 21, 2016.
[57] Sungevity was founded in 2007 and filed for bankruptcy in 2017.
[58] After restructuring its residential solar business several times, NRG Energy announced in February 2017 that it would completely shut down NRG Home Solar.
[59] OneRoof Energy was founded in 2011 but started to wind down its business by February 2017.
[60] David Feldman and Mark Bolinger, "Emerging Opportunities and Challenges in Financing Solar", U.S. DEPARTMENT OF ENERGY, SunShot Initiative, Section 3.1 Common Tax-Equity Financing Structures, p. 10. https://www.nrel.gov/docs/fy16osti/65638.pdf

1950s).[61] According to the SunShot Initiative, "[f]inancing is critical to solar deployment, because the costs of solar technologies are paid up front, while their benefits are realized over decades. Solar financing has been shaped by the government incentives designed to accelerate solar deployment. This is particularly true for federal tax incentives, which have spawned complex tax-equity structures that monetize tax benefits for project sponsors who otherwise could not use them efficiently."[62]

> While tax equity financing is not a cheap form of financing (due to a small number of tax equity investors),[63] and exposes solar developers to significant risks,[64] it has provided a financing bridge for solar developers to install solar panels on homeowners' rooftops. As a result, U.S. residential solar has demonstrated impressive growth rates over the last ten years.[65] Total solar generation has increased over fifty times since 2005, and residential solar installed capacity has grown seventy times.[66]

C. Storage Devices.

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[61] Id.

[62] David Feldman and Mark Bolinger, "Emerging Opportunities and Challenges in Financing Solar," U.S. DEPARTMENT OF ENERGY, p. iii, https://www.nrel.gov/docs/fy16osti/65638.pdf.; see also, U.S. DEPARTMENT OF ENERGY, SOLAR ENERGY TECHNOLOGIES OFFICE, "On the Path to Sunshot: Executive Summary," https://www.energy.gov/sites/prod/files/2016/05/f31/OTPSS%20-%20Executive%20Summary-508.pdf.

[63] David Feldman and Mark Bolinger, "Emerging Opportunities and Challenges in Financing Solar", U.S. DEPARTMENT OF ENERGY, SunShot Initiative, Section 3.3 Historical Financing Methods in the Residential Market, p. 18. https://www.nrel.gov/docs/fy16osti/65638.pdf.

[64] According to O'Sullivan and Warren:

> In the lease/PPA Model, solar providers must constantly manage three primary flows of cash and incentives to create value: (i) contracted payments with households, (ii) state credits for the electricity produced, and (iii) federal government tax credits and the investors in them. Examining the three value streams of residential solar further elucidates the ingenuity of the business model but also demonstrates the risks that solar providers must manage.

Francis M. O'Sullivan and Charles H. Warren, "Solar Securitization: An Innovation in Renewable Energy Finance," July 2016, MIT Energy Initiative, p. 8. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf.

[65] Francis M. O'Sullivan and Charles H. Warren, "Solar Securitization: An Innovation in Renewable Energy Finance," July 2016, MIT Energy Initiative, p. 4. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf.

[66] Id. (citing Feldman, Boff, and Margolis, "SunShot Initiativ Q4 2015/Q1 2016 Solar Industry Update," 25.

Storage device is now poised to be where solar systems were in in the early 2000s. However, its runway for monetization is extremely short, given the step down of the ITC after 2019 and its scheduled elimination altogether after 2021 of the residential energy credit and the permanent reduction to 10 percent of the commercial ITC. In order for storage to follow the successes of solar, the renewable industry needs guidance.

III. THE LEGAL ANALYSIS.

A. The Non-Required Requirement: the Integral Analysis.

Because the regulations provide that a storage device needs to be "related to the functioning of" the qualifying solar property in order to qualify for the ITC, tax practitioners generally view the regulations as requiring the storage system to be considered "integral" to the solar property in order to qualify for the ITC. This requirement leaves open many questions as to what specific fact patterns will cause a storage device to qualify for the ITC. For example, does the storage system need to be placed in service at the same time as the solar property in order to be ITC-eligible? Does the storage system need to be physically located near the solar property? Can the taxpayer that owns the storage system be a different taxpayer from the owner of the solar property?

The regulations do not directly answer these questions. The IRS has released a PLRs that provide some comfort with respect to this analysis (discussed below). However, without clear guidance, tax practitioners, developers, investors, and other financing parties are hesitant to pursue storage projects where there is a risk that the storage device will not qualify for the ITC. Uncertainty over how to satisfy the "integral" requirement is hindering the financing of storage devices associated with solar energy systems.

B. The PLR by PLR Approach to Tax Policy.

Because the sun's power wanes with the setting of the sun, the need for storage as a complement to solar panels was immediately recognized as necessary to fully optimize solar power. As such, Regulation § 1.48-9(d)(3) included storage devices as a solar energy

property, and subsequent PLRs generally supported the inclusion of storage devices for ITC eligibility.[67]

1. The IRS Has Generally Accepted Storage Devices as ITC-Eligible.

In PLR 2011-42-005, the IRS ruled that a storage device included with a wind farm would qualify for the ITC. In PLR 2012-08-035, the IRS ruled that a storage device added to an existing wind farm would qualify for the ITC. In PLRs 2013-08-005 and 2014-44-025, the IRS ruled that battery storage systems included with solar systems would qualify for the ITC.

2. The IRS Has Not Conclusively Indicated Whether Timing of the Storage and Solar Installation Has to Be Contemporaneous Under Section 48.

However, the PLR by PLR approach by the IRS to supporting storage devices is confusing, inefficient and piecemeal. It also leaves open many questions. For example, to our knowledge, the only IRS guidance considering whether a storage device needs to be installed at the same time as the renewable energy generation facility to be eligible for ITC under IRC Section 48 is PLR 2012-08-035, in which a storage device was added to an existing wind farm. The need for battery storage in the facts of PLR 2012-08-035 stemmed from periodic curtailments, when the wind farm was unable to transmit electricity due to transmission constraints. The storage device's primary use was to store electricity to work around transmission constraints as well as shifting delivery from off-peak to peak hours when the electricity can be sold for a higher rate. Under a different Code section, in PLR 2018-09-003, the IRS ruled that a battery system added to a residential solar system would qualify for the residential energy credit under IRC Section 25D. Although these two PLRs support the conclusion that a storage system does not need to be installed at the same time in order to qualify for the ITC, financing parties may still not be comfortable relying on these PLRs. Uncertainty over this question has hindered the financing for the

[67] For example, PLR 2013-08-005, PLR 2014-44-025, PLR 2011-42-005, PLR 2012-08-035.

retrofitting of newly developed storage devices on to existing solar energy systems.

3. The IRS Has Not Indicated Whether Ownership of the Solar Energy Property Has to Be the Same as the Storage Devices.

Another related open question is whether ownership of the storage device (for financing purposes), and therefore the right to claim the associated ITC, has to be the same as the underlying solar energy system. In financing a storage system that is to be added to an existing solar system, it would be beneficial for the taxpayer that owns the storage system to be allowed to be a different taxpayer than the taxpayer that owns the solar system. An investor that has invested in a solar system and already claimed ITC with respect to the solar system may not be interested in financing additional costs to add a storage system (and claim further ITC). Having the flexibility to find new investors for the storage system would improve the ability to obtain financing for the storage systems in this scenario. The statute and the regulations do not specifically require that the owner of the storage device also own the solar property. Under Section 48, the ITC is available with respect to qualified energy property, so owning a solar system in addition to a qualifying solar system should not be a requirement under the statute. A literal reading of IRC Section 48 does not require a storage system to be owned by the same taxpayer as the solar system. However, in both PLRs involving a storage system added at a later date, the same taxpayer owned both the storage device and the underlying solar energy system.[68] Given the lack of clear guidance on this question, investors may not be willing to finance a storage system where the solar property is owned by a different taxpayer.

4. The IRS Has Left Open the Question of Whether the Solar and the Storage Have to Be Located Physically Close Together.

Another question that tax practitioners and financing parties struggle with is whether the storage system needs to be physically located near the solar property in order to qualify for the ITC. The

[68] PLR 2012-08-035, PLR 2018-09-003.

regulations do not impose any explicit proximity requirement. However, in Chief Counsel Advice 201122018, the IRS defined the boundary of the ITC-eligible solar project as the point where voltage is stepped up for transmission. In both PLRs 2011-42-005 and 2012-08-035, the IRS mentioned that the storage system was on the low-voltage side of the project substation. In the facts of PLR 2011-42-005, the storage device connects to the project substation at the same voltage level and through the same electrical bus connection as the wind turbines. This PLR also mentions that the storage device is part of the equipment at the wind farm that manages delivery of the electricity the wind farm supplies to the grid. This leaves open the question of whether a storage system located on the high-voltage side of a solar project or located at a physically remote location would be considered integral to the solar project. Absent clear guidance, financing parties might not be willing to invest in storage systems that are not physically adjacent to the solar project, which limits flexibility in what kinds of storage systems can obtain financing. Without clarity on the basic questions described above, financing for storage devices will not come easily.

Further, because a PLR applies only to the taxpayer who received it, investors and other financing parties continue to be concerned about whether they can rely on the conclusions reached in the PLRs described above. These PLRs recite detailed factual information about the specific project to which the PLR relates (some of which is redacted in the publicly available versions of the PLRs), so the PLRs leave open a concern that the IRS would reach a different conclusion for a project where the facts are different than what was presented in the PLRs. Clear guidance that applies to all taxpayers would make it easier to obtain financing for storage projects.

C. The Stalled Section 48 Treasury Project.

Treasury and the IRS have recognized the need to update the Section 48 Regulations. The IRS issued Notice 2015-70 on October 2, 2015, expressly noting its intention to update the current regulations under IRC Section 48 that have not been revised since 1987. The IRS has also consistently included Section 48 as potential updates in its annual Priority Guidance Plans ("PGP") over the last several years (including for 2017-2018). However, efforts to update the Section 48 Regulations have once again stalled. Further, it is our understanding

that the IRS will not issue any PLRs for storage questions under IRC Section 48 while the regulation project is pending. This limits taxpayers' ability to get further comfort on the open questions described above.

The PGP "identifies the issues that will be addressed in published guidance during the business plan year."[69] The PGP can be updated throughout the year and is not binding on the IRS or the Treasury, they may work on published guidance projects that do not appear on the PGP and are not required to complete projects that appear on the PGP. A notice stating an intent to update current regulations cannot be relied on by taxpayers in any way. Once there are proposed regulations, the Office of Chief Counsel "should" look to the proposed regulations to determine their office's position on an issue and should not take any position in litigation that would result in a harsher result than what the taxpayer would be allowed under proposed regulations.[70]

D. The Result of the Ambiguities and Stalled Section 48 Treasury Projects: Financing Problem.

As a result of the ambiguities inherent in using a PLR by PLR approach to tax policy, investors have been hesitant to finance projects in situations where there is any doubt about the tax requirements being met. For example, where the installation of the storage device is not installed at the same time as the renewable energy generation, an investor may feel uncomfortable financing the investment in the storage device, especially if the owner of the storage device will be different from the owner of the underlying solar energy system. Further guidance in this area should assuage the concerns of investors and allow them to rely on the investment tax credit for these projects.

IV. THE POTENTIAL FIXES.

A. Allow Storage Device to Stand On Its Own.

[69] Internal Revenue Service, *Overview of the Regulations Process*, available at https://www.irs.gov/irm/part32/irm_32-001-001
[70] *Id*.

"Solar energy property" under Regulation § 1.48-9(d)(1) is too narrowly defined and should be revised to include not only those equipment, materials and parts "that use solar energy directly to generate electricity" but also those equipment, materials and parts that *store the solar energy so generated*. Specifically, the following italicized phrase should be added to Regulation § 1.48-9(d)(1) to read: "energy property includes 'solar energy property' [which, in turn,] includes any equipment and materials (and those parts relating to the functioning of such equipment) that use solar energy directly to generate electricity *or that store the solar energy so generated*." The revised regulations (or possibly the preamble to such regulations) should make clear that the concerns relating to the integral requirement described above are inapplicable so long as the 75 percent cliff test described below is met.

B. Issue IRS Guidance to Clarify What It Means for Storage Devices to Be "*a part of*" the Solar Energy Property.

While the Section 48 regulations project is pending, the IRS could release interim guidance on the specific questions relating to storage described above. The IRS could issue a notice stating that a storage system will qualify for the ITC so long as the 75 percent cliff test described below is met, regardless of whether the storage system is installed at the same time as the solar energy property, regardless of whether the same taxpayer owns both the storage system and the solar energy property, and regardless of where the storage system is located relative to the solar energy property. In order words, an integral analysis is not necessary. As discussed below, the 75 percent cliff test already ensures that a storage system must be closely associated with ITC-eligible solar property in order for the storage system to qualify for the ITC. Therefore, as a policy matter, the concerns around the "integral" requirement described above should not apply so long as the 75 percent cliff test is met. Having clear guidance from the IRS on these questions in the form of a notice or other guidance that applies to taxpayers generally rather than to a specific taxpayer would be a great help in getting financing for storage projects. The IRS could issue a notice to resolve these questions while it continues to work on other questions it wants to clarify the Section 48 regulations. The rules provided for under such a notice could be implemented in the Section 48 regulations when the regulations project is finalized.

C. These Potential Fixes Are Meant to Be Narrowly Crafted; Existing Limits on the Solar Energy Properties Would Continue to Apply to the Storage Devices.

We note that the regulations already impose a 75 percent cliff test (to qualify for ITC, no more than 25 percent of the energy used to charge the storage system can come from non-solar sources).[71] This 75 percent cliff test already ensures that a storage system must be closely associated with ITC-eligible solar property in order for the storage system to qualify for the ITC. Although the cliff test can create administrative burdens for taxpayers to ensure that the storage system will not fail to meet the 75 percent solar charging requirement, removing the integral requirement described above would go a long way towards increasing investment in storage systems. We propose that the regulations be clarified to provide that a storage system qualifies for the ITC if the cliff test is met, without regard to the integral requirement described above. This way, the nebulous concerns associated with the integral requirement described above would no longer hinder investment in storage systems.

D. Conclusion.

As Dr. O'Sullivan and Charles Warren observed in "Solar Securitization: An Innovation in Renewable Energy Finance," the lease and power purchase products offered by solar developers, while innovative and market-driven, nonetheless expose solar developers to significant risks:

> In the lease/PPA Model, solar providers must constantly manage three primary flows of cash and incentives to create value: (i) contracted payments with households, (ii) state credits for the electricity produced, and (iii) federal government tax credits and the investors in them. Examining the three value streams of residential solar further elucidates the ingenuity of the business model but also demonstrates the risks that solar providers must manage . . .

[71] Treas. Reg. § 1.48-9(d)(6).

> . . . The flow of incentives and customer payments combine to make the third-party owned business model an attractive value proposition to households. However, they also introduce complexity and risk; the solar provider has to manage all three value streams simultaneously, each of which presents a unique set of challenges and time horizons. Federal policies and state regulations are difficult to predict let alone influence. The business model can be particularly susceptible to exogenous shocks in the form of policy and regulation. In addition, managing the customer relationship, including the associated credit and technology risks, presents other challenges.
>
> Residential solar providers also face near-term financing issues. Existing sources of capital – primarily tax equity investors and bank loans – are limited. Further, a high cost of capital presents a material concern for solar providers seeking not only growth but also cash flow positive operations. [72]

One does not have to look back too far to observe the setbacks and bankruptcies in this industry. According to GTM Research, in 2017, "four large residential solar companies [NRG Home Solar, OneRoof Energy, Sungevity and Spruce Finance] have experienced major setbacks or exited the market entirely."[73]

Because the renewable industry is a relatively new industry, it operates in many gray areas of law where the statute has not kept pace with technological innovation. With the many risks inherent in this sector, the industry needs more certainty. If the U.S. is serious about supporting the renewable industry and furthering longstanding Congressional vision, policy leaders must provide clarity where it can. Treas. Reg. §§ 1.48-9(d)(3) and 1.48-9(d)(1), drafted over thirty years ago, never contemplated a third-party own structure for solar properties where solar panels and storage devices can be separately

[72] "Solar Securitization: An Innovation in Renewable Energy Finance," by Dr. Francis M. O'Sullivan and Charles H. Warren, July 2016, MIT Energy Initiative, p. 8. https://energy.mit.edu/wp-content/uploads/2016/07/MITEI-WP-2016-05.pdf.
[73] "GTM Research: U.S. Residential Solar Update 2017," by Nicole Litvak, April 2017, p. 15.

financed and owned, while still operating together as *a part of* a solar energy system to convert solar power into consumable household energy. The *a part of* requirement under Treas. Reg. § 1.48-9(d)(3) should be narrowly interpreted to mean only that storage devices, standing alone, do not qualify for ITC, but once installed with a solar energy system, it does become *a part of* the system, eligible for ITC, without regard to an integral analysis of same ownership, same timing and same location. Alternatively, another way to provide clarity is to expand the definition of solar energy property under Treas. Reg. § 1.48-9(d)(1) to include not just "equipment and materials . . . that use solar energy directly to generate electricity" but also those "that store the solar energy so generated."

With this clarity in place, government leaders will go a long way in settling an uncertain area of tax law and lifting the clouds from private sector innovation in solar storage financing for the average American household.