



National Institute of
BUILDING SCIENCES

Council on Finance,
Insurance and Real Estate

Financing Energy-Efficiency and Renewable-Energy Projects

Public Equity Instruments: An Analysis of REITs, MLPS and Yieldcos



An Authoritative Source of Innovative Solutions for the Built Environment



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BUILDING SCIENCES

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developed by the

Council on Finance, Insurance and Real Estate (CFIRE)

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Financing Energy-Efficiency and Renewable-Energy Projects Public Equity Instruments: An Analysis of REITs, MLPs and Yieldcos

Executive Summary

As renewable-energy sources and sustainable building technologies grow, the functionality, financial performance and resilience of the built environment in the United States is increasingly linked to the energy sector. This report examines the current and potential roles of three key equity investing structures in capitalizing the sustainable and energy-efficient development and retrofit of investment-grade commercial buildings and renewable-energy production. The report evaluates the effectiveness of these vehicles—Real Estate Investment Trusts (REITs), Master Limited Partnerships (MLPs) and Yieldcos—in accessing the public capital markets and recommends needed legislative and regulatory changes.

This examination is particularly important in light of the need to conserve limited government resources. In the current era of federal, state and local spending constraints, the private sector will finance the bulk of the capital required for renewable-energy projects and the development and retrofit of energy-smart commercial real estate. However, government can implement policies to help drive this private-sector investment. Financing itself is not sufficient to expand investments in building energy efficiency and renewable energy. Access to public capital markets is the most efficient way to stimulate the next generation of investment activity and paves the way for the development of robust secondary markets.

Financing Energy-Smart Buildings and Renewables through REITs

Real Estate Investment Trusts (REITs) represent the largest and arguably most successful use of the public investment markets to finance the energy-smart development and retrofit of commercial real estate, controlling some \$1.8 trillion in assets as of September 2015.

REITs are attractive to investors because income is untaxed at the entity level, provided that the REIT complies with prescribed asset and income tests and distributes at least 90 percent of its annual taxable income as dividends. Notably, REITs cannot earn significant income from the active conduct of a trade or business: at least 75 percent of REIT real estate income and 95 percent of total REIT income must be derived from passive sources, including rents; mortgage loan interest; gains on the sale of qualified real estate assets; and interest, dividends and sale gains on securities investments.

Within the limits imposed by required asset and income tests, REITs can participate in the building energy-efficiency and renewable-energy markets in the following ways:

- The installation of building energy-efficiency equipment and sustainable features in REIT-owned projects.

- The provision of loan financing for the development and retrofit of sustainable and energy-efficient buildings.
- The lease of land, building space and other REIT real property for occupancy or use by wind and solar farms that supply renewable or other energy services to the public.
- REITs can also hold assets that do not comply with the REIT rules, including facilities that generate and sell renewable energy, as long as they are lodged in one or more taxable REIT subsidiaries (TRS) that pay dividends to the REIT, provided that such dividends do not account for more than 25% of REIT income. The securities of one or more TRS entities can constitute up to 25% of REIT assets through the 2017 tax year, and 20% thereafter.¹

At the same time, the suitability of renewable-energy and building energy-efficiency equipment as direct REIT holdings or security for REIT mortgage loans falls in a gray area, as does the question of whether related income is REIT qualified. While the Internal Revenue Service (IRS) answered this question in the affirmative in a 2013 private letter ruling, the ruling is situation-specific, and cannot be generally relied upon. As of late 2015, the generally applicable REIT asset and income rules have yet to confirm that building energy-efficiency and renewable-energy equipment are appropriate REIT investments.

Draft IRS regulations propose that certain building energy-efficiency improvements, including transmission lines and pipelines; wiring; plumbing systems; insulation; chimneys; central heating and air conditioning systems; central refrigeration systems; and humidity control systems be classified as appropriate REIT assets under a “safe-harbor” test. Other improvements, including renewable-energy equipment, would be evaluated under a proposed multi-factor test to determine whether the asset is a permissible REIT holding.

In general, the draft IRS rules appear to permit the installation of building energy-efficiency and renewable-energy equipment and systems that are permanent; serve a utility-like function; support the passive character of the underlying real property; and produce income from payments for the use or occupancy of space. The draft rules appear to provide REITs with broad latitude to finance or to install and own building energy-efficiency and renewable-energy equipment and systems to furnish electricity, heat or water to tenants, whether in a single building or in multi-building or campus configurations. It should be noted that the proposed IRS rules explicitly do not address whether income derived from compliant assets meet REIT income tests.

Absent new federal legislation that expands permissible REIT activities, REITs are not especially efficient vehicles to finance the production and sale of renewable energy to the public. Under current law, REITs can generate at most 25 percent income from dividends derived from the business activities of one or more taxable REIT subsidiaries, including the sale of renewable energy to a significant number of outside customers or to the

¹ *Consolidated Appropriations Act, 2016* (H.R.2029), signed into law on December 18, 2015.

public. Further, TRS stock cannot constitute more than 25% of a REIT's assets through the 2017 tax year and 20% thereafter.

Amid concerns about federal revenue loss, it seems unlikely that the U.S. Congress would expand the use of REITs to the production and sale of renewable energy. Recent Congressional legislation has instead attempted to restrict REIT use.

Renewable Energy Finance

Renewable energy projects are especially in need of enhanced access to the public stock markets. To date, renewable energy projects have raised some 35% to 50%. In addition, investors without significant tax liability, including sovereign wealth funds, pension funds and many small retail investors, may lack the appetite for private, tax-driven deals. Improved access to public markets would therefore increase the pool of potential investors and reduce sourcing and transaction costs for renewable energy projects, helping to make the sector more cost-competitive and better able to reach scale in the U.S. economy.

Master Limited Partnerships

Because of the shortcomings associated with the use of tax equity financings, many industry observers have suggested that renewable-energy projects be permitted to organize as Master Limited Partnerships. Originally created in the 1980s, MLPs are partnerships traded on public stock exchanges. Publicly listed MLPs are exempt from corporate taxation if at least 90 percent of their gross income derives from passive sources (interest, dividends, rents and gains on the sales of real property or capital assets) and/or from activities tied to the exploration, development, mining or production, processing, refining, transport (including pipelines) or marketing of any depletable mineral or natural resource. Except for geothermal energy and the transport of certain renewable fuels such as ethanol and biodiesel, renewable energy enterprises cannot organize as MLPs.

MLPs, with October 2015 market capitalization of \$394 billion, are a substantial source of exchange-traded equity for fossil fuel and other natural resources companies. As of May 2015, 149 MLPs were traded on U.S. public exchanges, of which 62 percent were invested in oil and gas activities. The remaining MLPs included seven coal mines, 10 entities engaged in marine transportation, four in propane and 10 in other natural resources. While MLPs were originally used for real estate investment activity, almost all have since converted to REIT status. REITs offer the same entity-level tax benefits as MLPs, while simplifying tax reporting and compliance for investors.

By making partnerships eligible for listing on public exchanges, the MLP structure broadens access to equity capital, thus minimizing financing costs and permitting secondary market trading. Investors in MLPs benefit from the pass-through of untaxed cash flows, the sheltering of income and the limited liability features of the partnership structure, as well as the liquidity provided by trading on listed exchanges. With average

dividend yields recently ranging from 4 percent to 7 percent, MLPs have proven cost-effective, durable sources of capital for fossil fuel, mineral and natural resource projects.

Proposed federal legislation, the Master Limited Partnerships Parity Act, would extend the use of MLPs to the renewable-energy sector.² This approach would give parity to renewable-energy sources relative to fossil fuels and other depletable resources and offer renewables a more effective way of accessing the public equity market.

Many industry observers have suggested that in considering the Master Limited Partnerships Parity Act, Congress might also want to evaluate the efficacy of relaxing the passive loss and at-risk rules associated with renewable-energy investment, as is done with oil, gas and low-income housing. This change would have to be weighed against concerns about potential federal revenue loss.

Yieldcos

Yieldcos, first used in 2013, were developed to provide access to the public equity markets for renewable-energy projects. Yieldcos are listed operating companies able to generate immediate cash flow and dividends because their renewable-energy output has been pre-sold under power purchase agreements. As of early 2015, Yieldcos had been used successfully to raise some \$12 billion in renewable-energy project financing.

Yieldcos are taxable at the corporate level, but offset or minimize taxable income by generating tax losses through the application of depreciation, net operating losses, deductible expenses and federal investment and production tax credits for renewable energy. By minimizing or eliminating the payment of corporate tax, Yieldcos are able to compete with investment vehicles that are untaxed at the corporate level.

As the projects in a Yieldco mature, deductible expenses, net operating losses, depreciation and tax credits diminish, eventually becoming insufficient to shield the Yieldco from federal tax liability. As a result, Yieldcos must continually add new projects to generate the tax losses that shield income from corporate taxation. The ongoing addition of new projects is also required to maintain dividend growth projections. It is unclear whether Yieldcos without substantial, internal project development pipelines will be able to add sufficient numbers of new projects to achieve growth forecasts over time.

Market experience demonstrates that the efficacy of Yieldcos can be impaired by decreases in share prices, which can prevent Yieldcos from completing planned acquisitions, at least temporarily. The 2015 sell-off in Yieldco stocks sidelined the purchase of an estimated \$26 billion in renewable power projects. The viability of the

² 114th Congress, *Master Limited Partnership Parity Act*, S.1656 (<https://www.congress.gov/bill/114th-congress/senate-bill/1656>), H.R. 2883 (<https://www.congress.gov/bill/114th-congress/house-bill/2883>).

Yieldco structure will be further threatened if Congress allows the federal renewable-energy investment and production tax credits to expire permanently.³

As a result of these drawbacks, Yieldcos are a less than fully desirable way to provide public stock market access for renewable-energy projects. The renewable-energy sector would be better served by a publicly-listed investment vehicle that is untaxed at the corporate level. It is probable that existing Yieldcos would convert to MLP status if that option is enacted into law.

The Role of Federal Tax Incentives

As demonstrated by the foregoing discussion, tax incentives have acted and continue to act as key drivers in the financing of real estate and energy projects in the public capital markets. REITs and MLPs, which allow the distribution of untaxed income to investors, have proven effective and efficient mechanisms for raising investment capital on listed exchanges. Yieldcos, which strive to eliminate or minimize corporate level taxation for renewable-energy projects through the application of depreciation, deductible expenses and the investment and production tax credits for renewable energy, are frequently referred to as “synthetic MLPs”.

Recommendations

1. The U.S. Congress should enact federal legislation to extend the use of Master Limited Partnerships to renewable energy. Unlike the fossil fuels sector, renewable energy generation, with narrow exceptions, lacks a tax-advantaged investment vehicle to access the public equity markets.

The proposed Master Limited Partnerships Parity Act, bipartisan legislation that would extend the MLP mechanism to the renewable-energy sector, would achieve this objective. As of the publication of this report, that legislation had been referred to the Senate Finance Committee and the House Ways and Means Committee.

Because renewable-energy transactions are already sheltered from federal taxation through the federal renewable-energy investment and production tax credits, the measure is unlikely to cause significant federal revenue loss, a result substantiated by Congressional budget scoring for an earlier version of the legislation. (Congressional budget scoring for the 2015 bill was pending as this report was completed.)

Many industry observers have suggested that in considering the Master Limited Partnerships Parity Act, Congress might also want to relax the passive loss and at-risk rules associated with renewable-energy investment, as is done with oil, gas

³ The Consolidated Appropriations Act, 2016 (H.R. 2029) signed into law on December 18, 2015 extended the production tax credit for renewable energy through 2016. After 2016, the investment tax credit for renewable energy is scheduled to sunset for certain renewables and to be reduced sharply for others.

and low-income housing. This modification would have to be weighed against concerns about potential federal revenue loss.

2. The U.S. Congress should implement federal tax legislation to support the use of renewable-energy and commercial building energy-efficiency technologies so as to promote U.S. economic competitiveness and energy security. Renewable-energy and building energy-efficiency measures should be considered comprehensively by Congress in forthcoming tax reform packages. The investment tax credit for renewable energy, the renewable-energy production tax credit and Section 179 (D), the principal federal tax incentive encouraging commercial building energy efficiency, will expire or be reduced sharply at the end of 2016. Making these measures permanent would bolster U.S. economic competitiveness, enhance the nation's energy security and allow these technologies to achieve parity with fossil fuels. Yieldcos would particularly benefit from the extension of the renewable-energy investment and production tax credits at levels in force through 2016.
3. IRS regulations should be clarified so as to encourage investment in renewable-energy technologies and the development and retrofit of energy-efficient and sustainable commercial buildings.
 - A) The IRS should clarify the definition of energy property that qualifies for the federal investment tax credit under Section 48 of the Internal Revenue Code, so as to include equipment that enhances the delivery and use of renewable energy, including power conditioning equipment, energy storage devices and similar technologies.
 - B) The IRS should clarify the definition of REIT assets under Section 856 of the Internal Revenue Code, so as to provide a safe harbor and/or a clear determination for building energy-efficiency and renewable-energy equipment used to provide utility-like services to building occupants. The regulations should be broad enough to permit the use of microgrids, energy storage devices, combined heat and power, waste heat recovery and diverse renewable-energy technologies to supply utility services to project occupants.
 - C) After determining which building energy-efficiency and renewable-energy assets can be held by REITs, the IRS should further clarify the extent to which income derived from these assets is REIT-qualified, as well as the extent to which REITs would be permitted to sell energy back to the grid under net metering programs

Table 1: Comparison of Investment Vehicles

	REIT	MLP	Yieldco
Corporate Structure and Tax Status			
History:	55 years (1960)	34 years (1981)	<3 years (2013)
Primary industry/asset:	Real estate	Energy (oil & gas distribution)	Renewable energy
Type of entity:	Corporation, trust or association	LLC or Publicly-Traded Partnership (“PTP”)	C-Corp
Type of equity securities:	Shares or units	Units	Shares (Class A common stock to public; Class B common stock to parent company, held in majority)
Tax status:	Not taxable at entity level	Not taxable at entity level	Taxable at entity level. A typical Yieldco expects its dividend to be fully tax-sheltered for several years through the entity’s tax credits, depreciation allowance and net operating losses (NOLs).
Period during which federal income taxes expected to be insignificant:	Infinite	Infinite	Approximately 5 to 10 years for each acquired project, due to NOLs.
Investors, Distributions, Assets and Income Sources			
Investor base:	Retail, institutional	Retail (~70 percent); increasing institutional	Retail, institutional
Distribution type and requirements:	Dividends; IRS requires dividend payout of 90 percent of income	Distributions; Partnership agreement requires payout of distributable cash flow	Dividends; unrestricted (typical Yieldcos distribute ~70 to 90 percent available cash flows to shareholders)
Key qualifying assets:	≥75 percent in real property per IRS (excludes renewable generating equipment considered personal property)	Exhaustible resources that generate qualified income per IRS (exclude renewables, utilities)	Unrestricted
Income requirements:	≥75 percent of income must be from passive real estate sources (rents, mortgage interest, gains on real estate sales). ≥20 percent of income must be from other passive sources (dividends, interest, capital gains).	≥90 percent of income from exploration, development, mining, production, processing, refining or transport of depletable resources and/or passive sources (interest, dividends, rents and gains on real property or capital asset sale).	Income is derived from contracted revenue streams (typically power purchase agreements) with limited organic growth. To avoid federal corporate income tax, must continuously acquire new operating projects with fresh tax benefits.
Renewable Energy* (RE) Portfolio and Energy Efficiency (EE) Status			
RE legal eligibility:	With restrictions, equity REITs may host RE projects through a taxable REIT subsidiary (TRS).	Prohibited. (Pending MLP Parity Act approval.)	No restrictions.
EE status:	EE projects in buildings are widely undertaken.	N/A	N/A
*For US-listed portfolios; renewable: excludes renewable fuel ethanol and biomass; includes solar PV, wind and hydro. Adapted from Moody’s, January 2015 http://rmgfinancial.com/core/files/rmgfinancial/uploads/files/Analyzing%20Yieldcos%20-%20M%20Manabe.pdf ; additional data from NIBS research, including Latham & Watkins (2/18/2014), http://www.lw.com/thoughtLeadership/lw-mlp-yieldco-comparison .			

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I. Introduction

Policymakers and leaders within the building industry continue to look for improvements in energy efficiency and the production of renewable energy. This report examines the current and potential roles three key equity investing structures—Real Estate Investment Trusts (REITs), Master Limited Partnerships (MLPs) and Yieldcos—can play in helping to spark investment-grade capitalization of renewable-energy production and sustainable and energy-efficient development and retrofit of commercial buildings.⁴ The intent is to evaluate the effectiveness of these vehicles in offering access to the public stock markets and recommend needed legislative and regulatory changes to expand capital access.

Market Context

The United States has seen ongoing progress in energy efficiency and the use of renewable energy over the past 40 years. Since 1970, U.S. energy use per unit of GDP has declined by 54 percent.⁵ Yet, much remains to be done.

Energy-Efficient Commercial Buildings

Commercial buildings account for almost 19 percent of total primary energy consumption in the United States.⁶ Efforts are underway on multiple fronts to help reduce energy use associated with commercial buildings.

Green building certifications⁷ have increased sharply over the past decade, but do not yet appear to represent a majority of new construction and renovation. According to projections from McGraw Hill Construction, green non-residential building starts account for an estimated 40 to 48 percent of 2015 commercial building starts, up from 2 percent in 2005. The green share of commercial retrofit and renovation projects has been estimated at 25 to 33 percent for 2015, up from 7 to 12 percent in 2010.⁸

⁴ This study intentionally does not discuss single-family housing (defined as structures containing one to four housing units) and small commercial real estate projects. The dynamics of the single-family housing market differ considerably from the commercial real estate market and are therefore best addressed in a separate analysis. For an in-depth study of the retrofit financing needs of the small commercial real estate market see the Institute's January 2015 study, *Financing Small Commercial Building Energy Performance Upgrades: Challenges and Opportunities*, <https://www.nibs.org/news/209198/Small-Commercial-Buildings-Offer-Huge-Energy-Efficiency-Retrofit-Opportunities.htm>.

⁵ Shruti Vaidyanathan, Steven Nadel, et. al., *Overcoming Market Barriers and Using Market Forces to Advance Energy Efficiency*, American Council for an Energy Efficient Economy, March 2013, p. v.

⁶ Department of Energy, Buildings Energy Data Book, Table 1.1.3. <http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=1.1.3>.

⁷ U.S. green building certifications are made primarily through the Leadership in Energy and Environmental Design (LEED), Energy Star and Green Globes voluntary rating systems. These certifications encompass building energy efficiency, renewable energy usage and additional sustainable siting, materials and construction standards.

⁸ U.S. Green Building Council, "Green Building Facts," February 23, 2015, <http://www.usgbc.org/articles/green-building-facts>.

REITs, MLPs and Yieldcos: An Overview

REITs (Real Estate Investment Trusts), MLPs (Master Limited Partnerships) and Yieldcos are vehicles used to raise equity capital through the public stock markets. Using the public markets to raise capital increases the number of potential investors, improves liquidity and reduces financing costs.

REITs and MLPs, if they comply with requirements specified by the Internal Revenue Service, do not pay federal tax at the corporate level, allowing them to pass on higher dividends to unit holders and making them efficient capital raising vehicles. Yieldcos attempt to produce the same advantage for investors—the elimination of federal tax at the corporate level—through the use of federal tax incentives.

- **REITs (Real Estate Investment Trusts).** REITs are used to raise equity capital in the public markets for investment in real estate, principally in commercial properties. REITs do not pay corporate income tax if they distribute at least 90 percent of their income as dividends and comply with asset and income tests prescribed by the Internal Revenue Service.
- **MLPs (Master Limited Partnerships).** MLPs are typically used to raise equity capital for investment in fossil fuels (oil, gas and coal) and other mining operations. MLPs do not pay corporate income tax if they are traded on a listed exchange, and earn at least 90 percent of their income from any depletable mineral or natural resource and/or from passive sources, such as interest, dividends or rental income. Except for geothermal energy and the transport of certain renewable fuels such as ethanol and biodiesel, renewable energy enterprises cannot organize as MLPs.
- **Yieldcos.** Yieldcos are used to raise equity capital in the public stock markets for investment in renewable energy. Yieldcos are taxed at the corporate level, but attempt to eliminate taxable income by applying deductible business expenses, net operating losses and federal tax incentives, including the production tax credit for renewable energy, the investment tax credit for renewable energy property, and accelerated depreciation. Because they are designed to replicate the tax advantages of Master Limited Partnerships, Yieldcos are frequently referred to as “synthetic MLPs.”

While new construction is increasingly energy-efficient, it represents a small proportion of the overall building stock. Reducing overall energy use within the sector will require renovating and retrofitting existing buildings to current baseline energy code requirements or beyond. Opportunities to incorporate increased energy efficiency in existing buildings or support deep energy retrofits should be encouraged to the greatest extent possible. Availability of capital to support such investments is essential.

Acceleration in the adoption of building energy-efficiency and renewable-energy strategies holds the promise of substantial economic gains. A 2010 study by the National Academy of Sciences estimated that the fuller deployment of existing energy-efficiency technologies in commercial buildings could produce \$85 billion in annual savings on

\$201 billion in cumulative investment by 2030, equivalent to a 42 percent simple return and a simple payback period of approximately 2.4 years.⁹

Renewable Energy

The U.S. fuel base has diversified to incorporate additional use of renewable sources, focused on biomass, wind and solar energy, with supplemental contributions of geothermal and hydroelectric power. Renewable energy supplied 5 to 7 percent of U.S. power from 1970-2009. Renewables grew to 13 percent of U.S. energy use in the twelve months ending August 2015,¹⁰ an increase largely attributable to expansion in the use of wind and solar energy. Demand for renewable energy is growing and new government requirements should increase usage substantially over the coming years:

- In 2014, an estimated 53 percent of new U.S. electricity capacity came from wind and solar sources.¹¹
- In August 2015, the U.S. Environmental Protection Agency released the final version of the Clean Power Plan, regulations that require states to reduce CO₂ emissions from existing power plants by 32 percent from 2005 levels by 2030. Increasing use of renewables, both at the building-integrated level and at utility scale, is a path to achieving this goal.¹²
- In October 2015, California signed into law SB 350, legislation that amends the state's renewable portfolio standard (RPS) requirements, mandating that California's public utilities purchase 50 percent of California's electricity from renewable sources by 2030.¹³ As of October 2015, 29 states had enacted RPS requirements.¹⁴ California's example may encourage additional states to adopt or expand the use of RPS.

These trends indicate growing acceptance of renewable technologies, and thus a continuing need to supply predictable financing to these sectors.

The environmental implications of increased renewable-energy use are substantial. According to a 2009 study conducted by the Union of Concerned Scientists, increasing renewable energy to 25 percent of U.S. energy use by 2025 would decrease CO₂ emissions by an estimated 277 million metric tons annually—the equivalent of the yearly

⁹ National Academy of Sciences, *Real Prospects for Energy Efficiency in the United States*, "Chapter 2: Energy Efficiency in Residential and Commercial Buildings," Table 2.14, p.79.

¹⁰ U.S. Energy Information Administration, quoted in "Trends in Renewable Energy Production and Consumption in the USA", Geology.com, <http://geology.com/articles/renewable-energy-trends/>; U.S. Energy Information Administration, *Annual Energy Outlook 2015*, p. 24, <http://www.eia.gov/forecasts/aeo/>; U.S. Energy Information Administration, *Electric Power Data Monthly with Data for August 2015*, Table 1.1, October 2015, <http://www.eia.gov/electricity/monthly/>.

¹¹ Roy L. Hales, "Solar & Wind = 53% of New Electricity Capacity in 2014, *CleanTechnica*, February 3, 2015, <http://cleantechnica.com/2015/02/03/solar-wind-53-new-us-electricity-capacity-2014>.

¹² Clean Air Act, Public Law 88-206, Section 111(d).

¹³ Ryan Koronowski, "Half of California's Energy Will Come from Renewable Sources in 15 Years," *Climate Progress*, September 12, 2015, <http://thinkprogress.org/climate/2015/09/12/3700981/california-landmark-climate-bill/>; Samantha Page, "California Governor Signs Ambitious Renewable Energy Bill Into Law, *Climate Progress*, October 7, 2015," <http://thinkprogress.org/climate/2015/10/07/3710034/brown-signs-renewable-efficiency-law/>.

¹⁴ National Conference of State Legislatures, "Renewable Portfolio Standards and Goals," October 14, 2015, <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>.

output of 70 typical, new coal-fired plants—and create 202,000 new jobs.¹⁵ Over the long term, a gradual doubling of renewable generating capacity appears cost-effective. According to modeling performed by the National Renewable Energy Laboratory (NREL), an expansion of renewable generating capacity to 30 percent by 2050 showed no energy price increases relative to a baseline scenario relying largely on conventional energy sources.¹⁶

Why Financing Is Essential

In an era of federal spending constraints, the bulk of the capital required to finance additional building energy-efficiency and renewable-energy projects must come from the private sector. Capital access is especially important in order to achieve key national environmental and energy targets, which rely on a substantial increase—from today’s 13 percent to 20 percent by 2030—in the use of renewables for electricity generation.¹⁷ According to a recent NREL study, “Meeting a significant expansion of [renewable energy] installations will require access to broad new sources of financial capital.”¹⁸ The same study suggests that enhanced access to the public capital markets has the potential to “lower the cost of and expedite deployment [of renewable energy technologies], expand market opportunities, and induce economies of scale in various facets of component manufacturing and project development.”¹⁹

On its own, financing is not sufficient to scale investments in energy efficiency and renewable energy. However, access to public capital markets is the most efficient way to stimulate the next generation of investment activity and pave the way for the development of secondary markets. The REIT, MLP and Yieldco financing structures reviewed in this study, in combination with recommended public policy changes, offer potentially attractive options for capitalizing building energy-efficiency and/or renewable-energy projects. These investment structures offer opportunities to leverage private capital, create economies of scale in project underwriting and development, and reduce the need for direct government subsidies. At the same time, these investment vehicles provide tax benefits that may reduce federal revenue collections, so their modification requires careful public policy review.

Advanced energy financing strategies are important for economic development. Public capital market access is ripe for bipartisan collaboration and support. This report highlights the important commercial, political and economic opportunity that

¹⁵ Union of Concerned Scientists, “Benefits of Renewable Energy Use,” http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/public-benefits-of-renewable.html#.Vgx-9eGf_5w.

¹⁶ Mai, T.; Wiser, R.; Brinkman, G., et al., Exploration of High Penetration Renewable Energy Futures. Vol. 1 of Renewable Electricity Futures Study. NREL TP-6A20-52409-1. Golden, CO: National Renewable Energy Laboratory, p. xliv.

¹⁷ FACT SHEET: President Obama Announces New Actions to Bring Renewable Energy and Energy Efficiency to Households across the Country. The White House, August 24, 2015.

¹⁸ Michael Mendelsohn and David Feldman, *Financing U.S. Renewable Energy Projects through Public Capital Vehicles: Qualitative and Quantitative Benefits*, National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-58315, April 2013, p. 1, <http://www.nrel.gov/docs/fy13osti/58315.pdf>.

¹⁹ Ibid, p. vii.

should be at the forefront of the U.S. marketplace and political agenda for the next decade, building upon the foundation of prior public policies for enhanced success.

In addition to these equity investment vehicles, green bonds (the raising of debt capital in the public markets for energy-efficiency, renewable-energy and other environmentally sensitive projects), debt raised through crowdsourcing (the raising of debt capital through online donations), and the lease of renewable-energy equipment are emerging sources of capital for renewable-energy and energy-efficient building projects. These additional capital resources may offer timely and accessible support for the efficiency, renewables and resiliency investments we seek at lower costs. These vehicles are beyond the scope of this study, but are important capital market tools supporting the growth of the building energy-efficiency and renewable-energy sectors.

The Federal Role

While the health of the capital markets will largely determine the scope of U.S. investment in building energy efficiency and renewable energy, the federal government plays a crucial role in establishing the parameters under which such markets operate:

- The tax treatment of REITs, MLPs and Yieldcos significantly influences their effectiveness in raising capital, as will be discussed below.
- Federal tax credits and deductions, including the investment and production tax credits for renewable energy²⁰ and the Section 179 (D) deduction for commercial building energy-efficiency improvements²¹, are central drivers for encouraging private investment in these sectors. The renewable energy investment tax credit (ITC, now 30% for most renewables) will sunset for certain renewable fuels and be reduced sharply for others after December 31, 2016. The renewable -energy production tax credit (PTC) and the Section 179(D) tax deduction initially expired at the close of 2013, although Congress did extend both retroactively for 2014 and 2015 and through the end of 2016 in the Consolidated Appropriations Act, 2016 (H.R. 2029), signed into law on December 18, 2015. The post-2016 outlook for these incentives is unknown. While short-term extensions have been welcomed by industry, the consistency provided by long-term or permanent tax credits or deductions would support increased long-term investment in infrastructure to utilize such benefits.

²⁰ The federal production tax credit for renewable energy provides a credit per kilowatt hour generated by renewable energy facilities. The duration of the credit ranges from five to 10 years. The amount of the credit and its duration is determined by the technology used. <http://energy.gov/savings/renewable-electricity-production-tax-credit-ptc>. The federal renewable energy investment tax credit offers a credit of 10 percent to 30 percent for commercial renewable energy systems placed in service by December 31, 2016. The amount of the credit is determined by the technology used. <http://energy.gov/savings/business-energy-investment-tax-credit-itc>.

²¹ The Section 179 (D) tax deduction for commercial buildings provides a deduction of up to \$1.80 per square foot for energy-efficiency improvements in excess of industry standards to the building envelope; lighting; and heating, ventilating and air conditioning systems.

A key intent of this study is to evaluate how federal policies affect capital market operation, and to make recommendations as to how these policies might be improved to accelerate private investment in building energy efficiency and renewable energy.

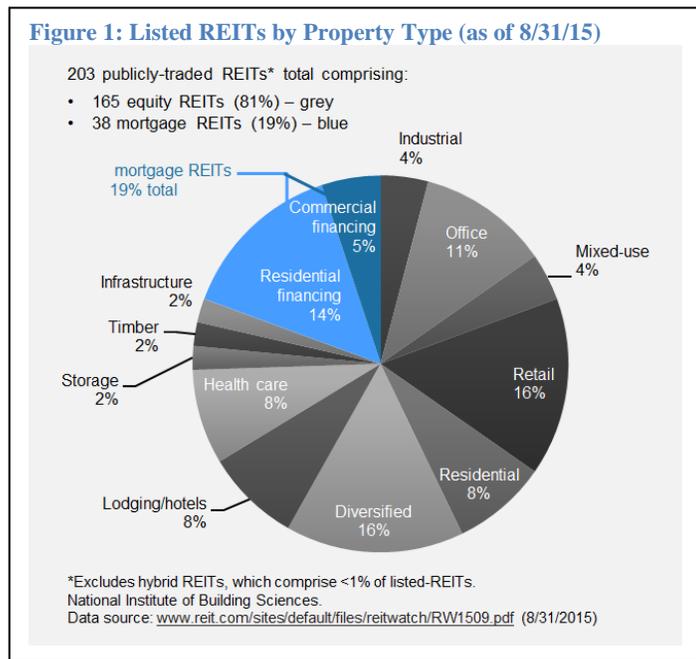
Target Audience

The National Institute of Building Sciences was established by Congress to advise the public and private sectors on issues impacting the built environment. Thus, this paper focuses on addressing several key audiences. Members of Congress and Congressional committees with jurisdiction over federal tax policy and energy are the key audiences for this study, as are executive branch agencies in these functional areas. The investment community, especially capital providers in the REIT, MLP and Yieldco sectors, is also encouraged to review this report and contribute to additional policy debate. Policy makers at the state, regional and local levels are expected to find this analysis instructive, as are utility companies and public utility commissions. The paper also intends to give insight to property owners, project developers, investors and financial institutions on identifying the challenges and opportunities for financing energy-efficiency and renewable-energy projects.

II. Investment Structures

A. REITs

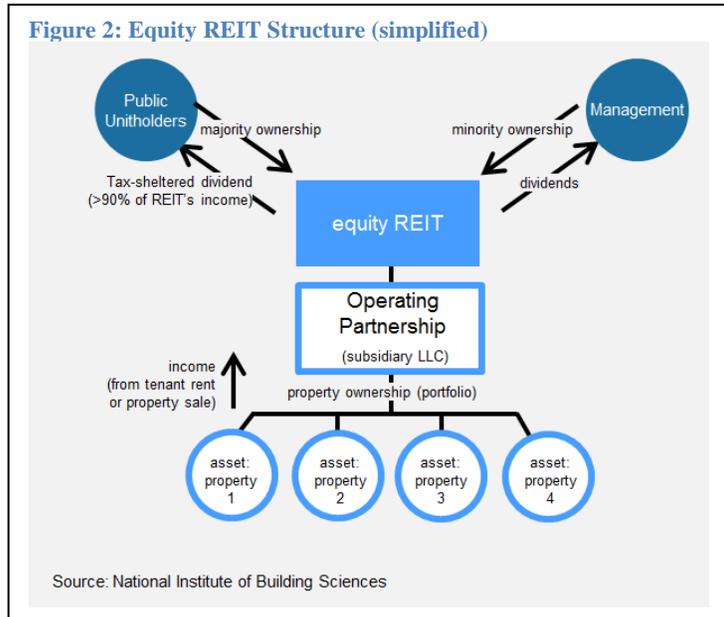
Publicly traded Real Estate Investment Trusts (REITs), with U.S. equity market capitalization of \$890 billion in September 2015,²² control an estimated \$1.8 trillion in income-producing real estate and other assets. Of the 223 publicly traded U.S. REITs, 199 (89 percent) trade on the New York Stock Exchange.²³ As these figures suggest, REITs represent the largest and arguably most successful use of the public equity markets to finance the development and retrofit of commercial real estate.



²² <https://www.reit.com/data-research/data/industry-snapshot>.

²³ Additional types of REITs are public REITs that file with the SEC, but do not trade on a public exchange, and private REITs, <https://www.reit.com/investing/reit-basics/what-reit>. For additional information on public, non-listed REITs see <https://www.reit.com/investing/reit-basics/public-non-listed-real-estate-companies>.

Equity REITs, which account for 93 percent of the U.S. REIT publicly traded market capitalization,²⁴ own their portfolio properties and pay out the bulk of their taxable income (net operating income from property operations, interest income on liquid investments and realized capital gains from property sales) as dividends. Mortgage REITs invest in mortgages and mortgage-backed securities, and distribute the bulk of the interest income therefrom in the form of dividends. Hybrid REITs employ the strategies of both equity and mortgage REITs.



In recent years, use of the REIT structure, including corporate conversions to REIT status, has been extended from traditional real estate investment organizations to organizations investing in non-traditional real property uses, including timber, telecommunications towers, billboards and outdoor advertising, railroad facilities and document storage.²⁵ The growing use of the REIT structure has been driven by the favorable tax treatment accorded REITs (see below). This trend has aroused interest in the use of the REIT structure for investing in building energy-efficiency equipment and renewable energy.

Because REITs are such a powerful capital aggregation tool, many suggest that the REIT structure should be extended to the broader renewable-energy market to accelerate clean-energy financing. As detailed below, however, the use of the REIT structure to supply renewable energy to building occupants and, perhaps, other consumers has been in part frustrated by U.S. Internal Revenue Service (IRS) restrictions on permitted REIT activities. The desirability of relaxing the REIT rules to permit REITs to supply renewable energy on a broader scale must balance national clean-energy goals against potential federal losses of corporate tax revenues.

²⁴ <https://www.reit.com/data-research/data/industry-snapshot>.

²⁵ Laurence E. Crouch and Eileen M. O'Pray, "Expansion of REIT-able Assets and REIT Conversions," Shearman and Sterling, May 29, 2013; Paul Ausick, "Iron Mountain Finally Becomes a REIT, Finally," 24/7 Wall Street, June 26, 2014; Ted Griggs, "IRS Approves Lamar Advertising for REIT Conversion", *Baton Rouge Advocate*, May 3, 2014.

History and Investment Benefits

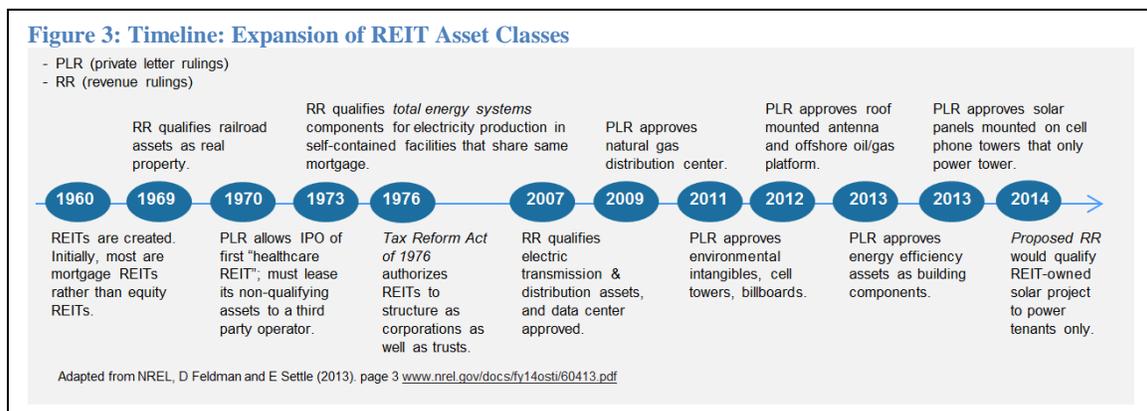
The modern REIT industry was established by the *Real Estate Investment Trust Act*. This federal legislation, passed in 1960, provides small investors with a mechanism for investing in the commercial real estate market.²⁶

REITs offer investors the following benefits:

- **Diversification.** REITs typically offer investors a professionally managed portfolio of real estate assets, spreading risk across numerous holdings, and, in some cases, across multiple geographies or real estate product sectors (office, multi-family, hotel, retail, warehouse and other property classifications).
- **Inflation protection.** Real estate is inflation-protected because rents, income and asset values typically rise as inflation increases.
- **Liquidity.** REIT shares are highly liquid—daily U.S. trading volume averaged \$6.4 billion as of September 2015,²⁷ and investor transaction costs are low.
- **Transparency.** Publicly listed REITs must comply with reporting and governance requirements that offer a measure of protection to investors.
- **Current income.** The REIT structure maximizes cash distributions to investors. As discussed below, REITs typically distribute the bulk of their taxable income as dividends to minimize or eliminate corporate income tax at the fund level.

Taxation Treatment

A key benefit of REIT investment is that profits paid out as dividends are not subject to federal income tax and are deducted from REIT taxable income provided that the REIT complies with prescribed asset and income tests (see below) and distributes at least 90 percent of its annual taxable income as dividends. REIT income not paid out as dividends



²⁶ Jim Clayton and Greg MacKinnon, *Real Estate Investment Trusts: The U.S. Experience and Lessons for the UK*, Investment Property Forum, May 2009, p. 6. The Real Estate Investment Trust Act was incorporated into the Cigar Tax Excise Tax legislation and signed into law on September 14, 1960. See <https://ireitinvestor.com/reit-101/> and <https://www.reit.com/investing/reit-basics/history-reits>.

²⁷ <https://www.reit.com/data-research/data/industry-snapshot>.

is subject to federal corporate taxation.²⁸

The ability of a REIT to pass untaxed income to investors in the form of dividends is conditioned on:

- (1) maintaining at least 80 percent of assets in real estate holdings, and up to 20 percent of assets in qualifying securities or cash and near-cash assets; and
- (2) earning at least 75 percent of gross income from passive real estate sources, including but not limited to rents and mortgage interest, gains on permitted real estate sales and the income of qualified REIT subsidiaries; and at least 95 percent of gross income from real estate and qualifying non-real estate passive sources (cash and near cash assets and qualifying securities), including interest, dividends and gains on sale.²⁹

As these requirements suggest, Congress intended for REITs to concentrate their holdings in real estate assets and to earn the bulk of their income from passive real estate sources, including rents, interest on loans secured by real property or interests in real property, and qualified property sales. By contrast, Congress did not intend for REITs to earn significant income from non-real estate sources, from the active conduct of a business, including the ongoing sale of real estate to customers, or by furnishing unrelated services to tenants for a fee. To further these objectives, additional limitations have been imposed on REIT activities:

Prohibited Transactions Income

Income derived from the sale or other disposition of property held primarily for sale to customers in the conduct of an ordinary trade or business³⁰ is considered prohibited transactions income and is excluded from REIT gross income tests; related profits are subject to a 100 percent penalty tax.³¹ Sales complying with specified safe-harbor rules³² are not considered prohibited transactions.

²⁸ As a result, many REITs pay out dividends equivalent to at least 100 percent of taxable income, therefore paying no federal corporate income tax. See FTSE, *FTSE Fact Sheet: FTSE NAREIT All Equity REITs Index*, May 29, 2015. This benefit has also been realized at the state level. Traditionally, most states have adopted federal tax treatment for REIT dividends, although a number of jurisdictions, including Maryland and Indiana, have limited the dividend payment deduction in determining REIT taxable income. For a more detailed examination of state regulation of REITs see Carolyn Puzella and Jane Steinmetz, “Real Estate Investment Trusts: Under the State Looking Glass”, PriceWaterhouseCoopers, 2008.

²⁹ Micah W. Bloomfield and Mayer Greenberg, *REITs Overview Practice Note*, Practical Law Company, 2011, at Stroock, Stroock and Lavan, <http://www.stroock.com/sitefiles/pub1053.pdf>.

³⁰ By way of example, real estate-related prohibited transactions include the sale of homes developed for sale to the public and the sale of apartments developed as condominiums. Sales of non-real estate property held primarily for customer sale are also prohibited transactions.

³¹ Latham and Watkins, *Journal of Taxation of Investments*, Civic Research Institute, authorized reprint for Latham and Watkins, <http://latham.com>, p.64.

³² Sales complying with the following safe-harbor rules are not considered prohibited transactions:

- The property was held for at least two years prior to sale and, in the case of land and improvements not acquired through foreclosure, held for the production of rental income for at least two years.
- The cost of capital improvements during the two years before sale is less or equal to 30 percent of the sales price.
- REIT sales during the taxable year are limited to seven or fewer properties or properties that comprise 10 percent or less of the REIT’s fair market value or adjusted tax basis.

Impermissible Tenant Service Income

Impermissible tenant service income, including operating and management fees directly charged by the REIT and services other than those “customarily rendered” to tenants in properties of the same class in the same geographic area³³, is restricted to 1 percent of REIT property income. If the 1 percent limitation is exceeded, all income from that property will be treated as non-complying for the purposes of REIT gross income tests.³⁴ The provision of services to the public on a more than incidental basis triggers the finding of impermissible tenant service income.³⁵

A REIT may furnish otherwise impermissible services without jeopardizing the qualification of property income under the gross income tests by:

- Not collecting fees for such services;
- Providing such services through an independent contractor from whom the REIT does not receive or derive any service income; or
- Providing such services through a taxable REIT subsidiary (TRS).³⁶

Impact of Existing IRS Rules on Energy-Efficiency and Renewable-Energy Projects

The IRS has issued rulings validating the provision of certain electricity and steam heat services by REITs as customary services that do not trigger the impermissible tenant services rules.³⁷ In addition, the IRS affirmed in a June 2013 private letter ruling the ability of a Hannon Armstrong REIT to provide mortgage financing for energy systems to be installed as long-lived permanent improvements to a building or facility or on the owner’s property, provided that the improvements (i) are intended solely for the use of the building or facility, (ii) are not accessory to operation of a business, and (iii) are secured by both the energy system and the building or facility served by the system. The private letter ruling found that the energy systems would meet both REIT asset and income tests.³⁸

At the same time, the Hannon Armstrong private letter ruling is situation-specific and cannot be generally applied. *As of late 2015, the classification of REIT energy-efficiency and renewable-energy assets remains a gray area, as does the permissibility of supplying energy services to tenants.* Clarification of the REIT real property and income rules to resolve these ambiguities would facilitate additional REIT investment in energy efficiency and renewable energy.

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³³ Internal Revenue Service, Revenue Ruling 2004-24.

³⁴ Latham and Watkins, *Journal of Taxation of Investments*, Civic Research Institute, p.73.

³⁵ Internal Revenue Service, Revenue Ruling 2004-24.

³⁶ Internal Revenue Service, Revenue Ruling 2003-86.

³⁷ See Internal Revenue Services, Opinion 200828025, dated April 8, 2008, and issued July 11, 2008, in reference to PLR-153614-07 (electricity and steam); and Revenue Ruling 2004-24.

³⁸ Internal Revenue Service, Private Letter Ruling 201323016, June 7, 2013.

REITs and Energy Efficiency: Greening Portfolios through Building Retrofits

- Equity REITs with existing portfolios of real property in ownership or management are increasingly interested in improving their energy efficiency and lowering the electricity costs in the operations of their buildings.
- Data collected for a sample of 75 REITs by the National Association of Real Estate Investment Trusts (NAREIT) reveals that the average REIT energy-efficiency investment increased 30 percent in 2014, versus the three-year moving average from 2011 to 2013.¹
- From the perspective of the building owner, there are generally four major points to introduce energy-efficiency retrofits on a project-by-project basis in a multi-tenant commercial building: (i) major lease expiration(s), resulting in substantial property vacancy; (ii) new property acquisition; and (iii) a tenant-driven retrofit, typically pursuant to a lease renewal or expansion by an anchor or other substantial tenant.²
- “Quick win” energy retrofits (for example, the commissioning and modernization of equipment, the use of LED lighting and the installation of occupancy sensors to reduce energy use) are relatively inexpensive, are often implemented incrementally, enjoy high financial returns and achieve shorter payback periods than more comprehensive “deep” retrofits.
- “Deep” retrofits typically result in a substantial reduction of energy consumption benchmarked against the energy savings of the entire building compared to the baseline undertaken before the retrofit.³ A deep retrofit’s expenses entail a longer payback period and upgrade or replace core systems including elements of building envelope (roof, windows, exterior cladding) and major mechanical elements, such as boiler, chiller or HVAC. “Deep” retrofits are frequently undertaken at the end of the useful life of building components.
- Mortgage and hybrid debt/equity REITs can make loans for energy-efficiency retrofits.

REIT Financing of Energy-Efficiency Strategies: As is the case with other capital improvements, REITs typically finance energy-efficiency improvements from retained earnings, although debt financing has also been used. Key debt strategies are outlined below.

- Private Debt. To supplement available capital and to improve yields for equity investors, debt financing is frequently obtained by borrowing against the REIT portfolio or against a specific project or projects. Historically, REITs have secured debt financing from private lenders.
- Green Bonds. With the advent of green bonds, REITs have begun to access the capital markets for debt financing related to their building energy-efficiency strategies.⁴ To date, these financings have been used for green-certified properties. The first U.S.-listed equity REITs issuing green bonds through their LEED-certified portfolio include Regency Centers⁵ and Vornado⁶ in 2013 and Digital Realty,⁷ a data center REIT, in 2015. Also in 2015, Hannon Armstrong Sustainable Infrastructure Capital (HASI), a mortgage/equity hybrid REIT, issued a \$100.5 million “Sustainable Yield Bond”, the first to be certified under the Alliance to Save Energy’s “CarbonCount” program.⁸ The bond, which bore an A rating and a 19-year term, had a 4.28 percent interest rate. To date, the issuance of green bonds has proved a cost-effective financing strategy, because such bonds have commanded high prices and low interest rates.
- Securitization. Securitization, the bundling of individual loans into bonds, holds promise for mortgage and hybrid mortgage/equity REITs as a mechanism for raising REIT capital. In December 2013, Hannon Armstrong Sustainable Infrastructure Capital (HASI), a mortgage/equity REIT, raised \$100 million in a private placement securitization of the cash flows generated by over 100 wind, solar and energy-efficiency installations, all with investment-grade obligors. The green bonds created by the securitization had a 6-year term, and were issued at a 2.79 percent interest rate.⁹ HASI has since used securitization for additional bond financings.
- PACE financing. Property assessed clean energy (PACE) programs have occasionally been tapped by REITs to finance energy-efficiency strategies. PACE programs, sponsored by states and municipalities, finance energy-efficiency retrofit loans, often in partnership with private lenders. The loans may offer longer terms, and thus lower loan payments, than are available through conventional borrowing. To improve security to the lender, the PACE loan is added to and collected with the property tax bill; a default on the loan is considered a default on the property tax, establishing a superior lien. Equity REITs, including Kimco Realty, Prologis, Simon Property, ForestCity and Hilton have employed PACE financing for energy-efficiency projects,¹⁰ as has the hybrid REIT established by Hannon Armstrong.¹¹ PACE loans, however, are used more frequently by residential and small commercial borrowers than by REITs.

Green REITs: Operational Performance: Recent academic studies appear to verify that increases in green operations materially enhance REIT financial performance, including returns on assets, returns on equity and ratios of funds from operations (a measure of operating cash flow) to total revenues.¹²

- Fuertz, in a study (2015) of global REIT performance from 2011 through 2014, found that return on equity (ROE) increased by approximately 3.4 percent for each 1 percent increase in a REIT's score on the Global Real Estate Sustainability Benchmark (GRESB) index, while return on assets (ROA) increased by roughly 1.3 percent for each 1 percent increase in the GRESB score.¹³
- In a 2012 study tracking U.S. REIT performance from 2000 to 2011, a team from Maastricht University found that a 1 percent increase in the portfolio weight of LEED-certified properties increased ROE by 7.4 percent to 7.9 percent, ROA by 3.5 percent and the ratio of funds from operations to total revenues by 17 percent to 25 percent. The study found that a 1 percent increase in Energy Star certified properties increased ROE by 0.66 percent, ROA by 0.31 percent and the ratio of funds from operations to revenue by 2 percent to 3 percent.¹⁴

Green REITs: Stock Market Performance: The impact of green operations on REIT stock market performance has been mixed, indicating that the market may not have fully recognized the effects of green operations on REIT financial performance.

- Fuertz (2015) concluded that REITs with higher scores on the GRESB index realized “a significant and positive effect on risk adjusted stock market returns,” as measured by the Sharpe ratio (a measure of risk-adjusted portfolio returns), indicating that “REITs with higher GRESB ratings do indeed deliver higher returns per unit of risk.” At the same time, GRESB ratings did not appear to affect REIT returns before adjustment for risk, nor did GRESB ratings exert statistically significant effects on a REIT's alpha (volatility-adjusted return above an appropriate market benchmark; a positive alpha indicates excess value has been realized) or its beta (volatility relative to market benchmark; a beta of less than 1 is less volatile than market benchmark, while a beta of more than 1 is more volatile than benchmark).¹⁵
- Sah, Miller and Gosh found (2013) that U.S.-listed REITs that participated as partners in the EPA's Energy Star program realized 5.68 percent higher annualized returns from 2005 through 2010 than non-participating peers.¹⁶
- Eichholtz, Kok and Yonder's review (2012) of U.S.-listed REIT performance from 2000 through 2011 found no association between greenness of a REIT portfolio and its alpha, but found that increasing portfolio greenness by 1 percent reduced market betas by 0.14 percent for LEED-certified properties and by 0.01 percent to 0.03 percent for Energy Star properties, suggesting that green practices may reduce portfolio volatility.¹⁷

¹ <https://www.reit.com/news/articles/study-reits-raising-investment-sustainability-growing-returns>.

² Candace Damon (HR&A Advisors), “Financing Energy Efficiency.” Presentation at the AIA Center for Architecture, New York, NY, 11/09/2011. Archived video can be accessed: <https://vimeo.com/31965211>.

³ http://apps1.eere.energy.gov/tribalenergy/pdfs/doe_eere_aerg_office_buildings.pdf.

⁴ See, for example, “U.S. Green Building Council, “Green Bonds: REITs Find Strong Investor Demand For High Performance Property Debt Financing,” <http://www.usgbc.org/resources/green-bonds-reits-find-strong-investor-demand-high-performance-property-debt-financing> (USGBC, 2015).

⁵ <https://www.reit.com/news/articles/regency-centers-sells-250-million-10-year-%E2%80%98green-bonds%E2%80%99>.

⁶ See “Green Bonds,” Vornado Realty Trust “2014 Sustainability Report.” page 4, <http://www.vno.com/sustainability/overview>.

⁷ <http://www.usgbc.org/articles/digital-realty-trust-issues-first-global-green-property-bond>.

⁸ <http://investors.hannonarmstrong.com/file.aspx?IID=4376922&FID=31284549>.

⁹ “Hannon Armstrong (HASI) Complete \$100,000,000 Asset-Backed Securitization Of 2.79% Sustainable Yield Bonds,” PR Newswire, December 23, 2013, <http://www.thestreet.com/story/12170794/1/hannon-armstrong-hasi-completes-100000000-asset-backed-securitization-of-279-sustainable-yield-bonds.html>.

¹⁰ <http://www.pacenation.us/c-pace-case-studies/>.

¹¹ <https://www.reit.com/news/videos/sustainable-infrastructure-reit-focusing-reducing-carbon-output>.

¹² It should be noted REIT populations sampled, research methodologies and results differ considerably.

¹³ Carbon War Room, *Investing in Sustainability Pays Off*, June 2015, p. 5, summary for investors of Franz Fuertz, The Financial Rewards of Sustainability: A Global Performance Study of Real Estate Investment Trusts. Summary available at <http://carbonwarroom.com/news/2015/06/19/news-sustainable-buildings-pay-real-estate-investors-finds-first-its-kind-study>.

¹⁴ Piet Eichholtz, Nils Kok, Erkan Yonder, “Portfolio Greenness and the Financial Performance of REITs,” *Journal of International Money and Finance*, 2012, doi: 10.1016/j.jimonfin.2012.05.014, pp.12-13, <http://www.fir-pri-awards.org/wp-content/uploads/Article-Eichholtz-Kok-Yonder.pdf>.

¹⁵ Franz Fuerst, The Financial Rewards of Sustainability: A Global Performance Study of Real Estate Investment Trusts (6/16/2015). Available at SSRN: <http://ssrn.com/abstract=2619434>.

¹⁶ Vivek Sah, Norman Miller, and Biplab Ghosh “Are Green REITs Valued More?” *Journal of Real Estate Portfolio Management*: 2013, Vol. 19, No. 2, pp. 169-177. <http://aresjournals.org/doi/abs/10.5555/rep.m.19.2.bu08527270336t5x>.

¹⁷ Piet Eichholtz, Nils Kok, Erkan Yonder, Portfolio greenness and the financial performance of REITs, *Journal of International Money and Finance*, <http://www.sciencedirect.com/science/article/pii/S0261560612001052>.

Proposed REIT Asset Rules

As of October 2015, the IRS is in the process of drafting new rules defining REIT real property assets. Under the proposed rules, tangible assets that can be held by a REIT include land, inherently permanent structures that serve a passive function (such as sheltering, containing or protecting) rather than an active function (such as the production of goods), and structural components.³⁹ Assets accessory to the operation of a business, including its machinery or equipment, are excluded from the definition of assets that may be held by a REIT.⁴⁰

Under the draft IRS rules, structural components are assets that are integrated into an inherently permanent structure, serve that structure in its passive function, and “do not produce or contribute to the production” of income, other than payments for space use or occupancy. In addition, the structural component and the inherently permanent structure must have the same owner. In general, a system is considered a single structural component for REIT asset test purposes “if the components of the system work together to serve the inherently permanent structure with a utility-like function, such as systems that provide a building with electricity, heat or water”⁴¹

The proposed REIT asset rules provide “safe-harbor” status to a number of assets related to the provision of energy-efficiency or renewable-energy services, including transmission lines and pipelines (inherently permanent structures); and wiring, plumbing systems, insulation, chimneys, central heating and air conditioning systems, central refrigeration systems and humidity control systems (structural components).⁴² Safe-harbor status establishes that such improvements are appropriate REIT assets; the REIT need not undertake any further demonstration of compliance.

Assets not included in the proposed IRS safe-harbor rules are to be assessed according to a prescribed multi-factor test to determine whether the asset is a permissible REIT holding.⁴³ In general, a REIT-compliant asset must be permanent and serve or support a passive function (such as to “contain, support, shelter, cover or protect” building occupants). In addition, a permissible structural component (or system) must meet most of the following tests:

- Serve a utility-like function.
- Produce income from payments for the use or occupancy of space.
- Be installed during construction.

³⁹ Internal Revenue Service, REG 150760-13, <http://www.gpo.gov/fdsys/pkg/FR-2014-05-14/pdf/2014-11115.pdf>, p. 15. Under the proposed rules, a structural component is defined as “a constituent part of and integrated into an inherently permanent structure” that serves the structure function” (rather than to produce goods or in another active function) and “does not produce or contribute to the production of income other than consideration for the use or occupancy of space” (that is, does not produce income other than rent or other permissible sources of REIT income). Further, the ownership interests in the structural component and the inherently permanent structure to which it is functionally related must be held by the same entity. See Internal Revenue Service, REG 150760-13, <http://www.gpo.gov/fdsys/pkg/FR-2014-05-14/pdf/2014-11115.pdf>.

⁴⁰ Internal Revenue Service, REG 150760-13, <http://www.gpo.gov/fdsys/pkg/FR-2014-05-14/pdf/2014-11115.pdf>.

⁴¹ Ibid.

⁴² Ibid.

⁴³ Ibid.

- Remain in place if the tenant vacates the premises.
- Be owned by the same entity as the inherently permanent structure.⁴⁴

Ideally, the final IRS regulations should allow REITs to invest in project-integrated renewable-energy systems; energy storage; combined heat and power; waste heat recovery; and microgrid equipment that would furnish utility-like services to tenants. It should be noted that the proposed IRS rules explicitly do not address whether income derived from compliant assets meet REIT income tests.

As previously suggested, the proposed REIT asset rules appear to sanction the installation of building energy-efficiency and renewable-energy equipment and systems that are permanent; serve a utility-like function; support the passive character of the underlying structure; and produce income from payments for the use or occupancy of space in that structure. The draft rules appear to provide REITs with broad latitude to finance or to install and own building energy-efficiency and renewable-energy equipment and systems to furnish electricity, heat or water to tenants, whether in a single building or in multi-building or campus configurations.

By contrast, equipment and systems used to furnish services to outside customers or to the public appear to violate current and proposed requirements for qualifying REIT assets; if so, these assets could not be used to satisfy the REIT asset test and REIT income flowing from these assets would be deemed non-complying. Thus, the rules would prevent a REIT structure from being used to provide renewable energy to the public, unless it is lodged in a taxable REIT subsidiary.⁴⁵

REIT Activities in Building Energy Efficiency and Renewable Energy

Under existing law (see sidebars on REIT activities and supporting case studies), REITs can participate in the following building energy-efficiency and renewable-energy activities:

- The installation of building energy-efficiency equipment and sustainable features in REIT-owned projects.
- The provision of loan financing for the development and retrofit of sustainable and energy-efficient buildings.
- The rental of land, building space and other REIT real property for occupancy or use by wind and solar farms that supply renewable or other energy services to the public.
- By holding the securities of one or more taxable REIT subsidiaries, REITs can control assets that do not comply with the REIT rules, including facilities that generate and sell renewable energy, as long as they do not account for more than 20 percent of REIT income. The securities of one or more TRS entities can account

⁴⁴ Ibid.

⁴⁵ Net metering would presumably be permitted under the proposed IRS regulations to the extent that it is used in the context of supplying utility services to tenants and the net income generated is *de minimis* (currently up to 1 percent of property income) under the impermissible tenant services income rules. The use of net metering by REITs is not addressed in the existing draft of the proposed regulations.

for up to 25% of REIT assets through the 2017 tax year, and up to 20% of REIT assets thereafter.

Public Policy Outlook

The likelihood of extending REIT status to renewable-energy providers must be assessed against trends in REIT use. In recent years, use of the REIT structure, including corporate conversions to REIT status, has been extended from traditional real estate investment activities to non-traditional real property uses, including timber, telecommunications towers, billboards and outdoor advertising, railroad facilities and document storage.⁴⁶ These developments have triggered Congressional concerns about federal revenue loss, prompting the December 2015 passage of legislation immediately taxing gains associated with corporate REIT conversions and the 2014 introduction of a bill restricting permissible REIT real estate assets to property with depreciation schedules of 27.5 years or longer.⁴⁷ Against this backdrop, Congress seems disinclined to extend the use of REITs to the provision of renewable-energy services to third-party customers or to the public.

On the other hand, proponents of extending the REIT structure to the provision of renewable energy cite the following benefits:⁴⁸

- Providing the renewable-energy sector with access to the public equity markets, thereby broadening capital supply, reducing project finance costs and presumptively cutting utility prices to end users.
- Opening a secondary market and providing liquidity for the purchase and sale of equity interests in renewable energy.
- Offering small retail investors the opportunity to place capital in the renewable-energy sector.

⁴⁶ Laurence E. Crouch and Eileen M. O'Pray, "Expansion of REIT-able Assets and REIT Conversions," Shearman and Sterling, May 29, 2013; Paul Ausick, "Iron Mountain Finally Becomes a REIT, Finally," 24/7 Wall Street, June 26, 2014; Ted Griggs, "IRS Approves Lamar Advertising for REIT Conversion", *Baton Rouge Advocate*, May 3, 2014.

⁴⁷ The Consolidated Appropriations Act, 2016 (H.R. 2029) signed into law on December 18, 2015, eliminates the tax free transfer of corporate real estate to a REIT. Former House Ways and Means Committee Chair Dave Camp proposed 2014 legislation that would restrict REIT real estate to property with a depreciation schedule of at least 27.5 years. The 2014 legislation is discussed in Peter E. Boos, "Runaway REIT Train? Impact of Recent IRS Rulings,"

TaxAnalysts.com, April 3, 2015, <http://www.taxanalysts.com/www/features.nsf/Articles/FFF8F863CF33DB1E85257E1B004BAD8F?OpenDocument>. Peter E. Boos, "Runaway REIT Train? Impact of Recent IRS Rulings," TaxAnalysts.com, April 3, 2015, <http://www.taxanalysts.com/www/features.nsf/Articles/FFF8F863CF33DB1E85257E1B004BAD8F?OpenDocument>.

⁴⁸ See: Felix Mormann and Dan Reicher, *Invest But Reform: Smarter Finance for Cleaner Energy: Open Up Master Limited Partnerships (MLPs) and Real Estate Investment Trusts to Renewable Energy Investment (REITs)*, Brookings Institution, Brookings Institution, Steyer-Taylor Center for Energy Policy and Finance, Stanford University, November 13, 2012, <http://www.brookings.edu/research/papers/2012/11/13-clean-energy-investment> and Jesse Morris, "How Real Estate Investment Trusts Can Change the Clean Energy Industry," *RMI Outlet*, Rocky Mountain Institute, June 5, 2013.

REITs and Renewable Energy

REITs have utilized a number of approaches to facilitate the use of renewable energy. These approaches, discussed below, include:

- Leasing rooftop space or land to operators of renewable-energy projects.
- Providing renewable energy services through a taxable REIT subsidiary.
- Lending capital to finance renewable-energy projects.
- Providing transmission and distribution services for utility scale projects by owning transmission lines and distribution equipment.

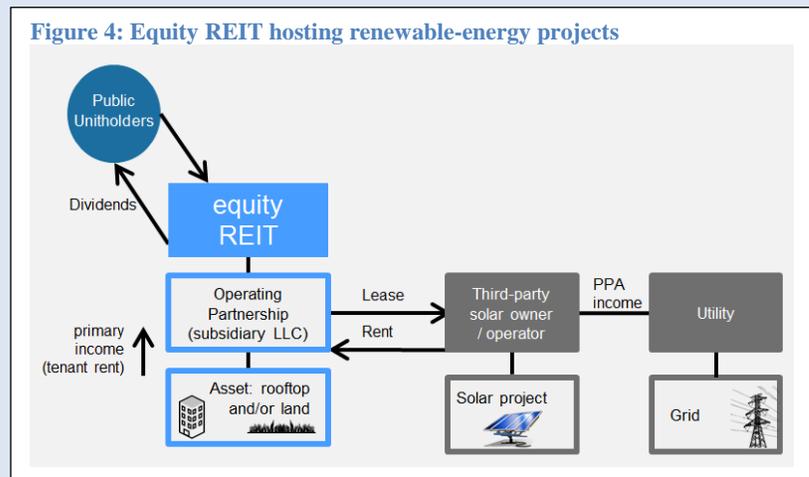
Equity REIT hosting renewable-energy projects (RE)

Case study: Prologis

Overview

- Many equity REITs, whose primary incomes derive from tenant rents, routinely rent out excess space on their rooftops and surrounding land to tenants providing telecommunications or renewable energy services. Prologis is an example of a REIT specializing in large warehouses with relatively large roof spaces on their facilities, many of which are appropriate for hosting solar arrays.

Figure 4: Equity REIT hosting renewable-energy projects



What assets does the company hold in its portfolio?

- Prologis's primary assets are its warehouse facilities, which are rented principally for industrial and manufacturing uses. Prologis has begun to lease rooftop space to solar system operators.

How does the REIT meet the income test and asset test?

- Prologis does not own the solar project, but receives rental income from solar rooftop tenants. Rental income is considered acceptable REIT income.

What are the REIT's income sources and the income's tax status?

- Primary income source derives from the rents paid by the warehouse tenants. The primary rent is supplemented by the rents (typically negotiated on a fixed rate, long-term basis) that the solar operators pay to the REIT, providing the REIT with ancillary revenue to its shareholders.

Who uses the renewable energy services?

- The solar operator sells all energy off site to the local utilities through long-term power-purchase agreements (PPA), or sells it to a utility offtaker (an entity that agrees to purchase future energy output, subject to contract). In a PPA with a utility, the utility is contractually required to buy all of the energy from the third-party operator.
- Tenants occupying Prologis's warehouses are not serviced directly by the third-party operators.
- Prologis reports it has more than 110 MW of renewable energy operating on more than 25 million square feet of its property holdings.

Additional equity REITs hosting renewable projects

- Solar projects: Regency Centers, Vornado Realty Trust, Power REIT, General Growth Properties, HCP Inc.
- Wind projects: Farmland Partners

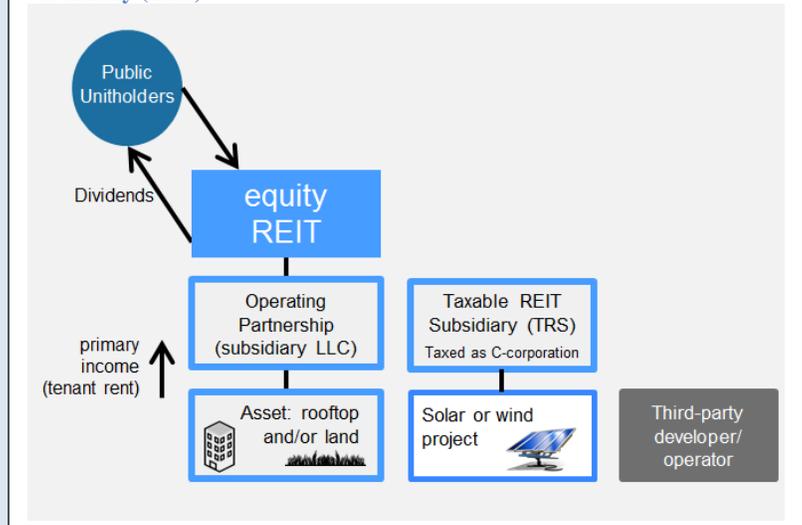
Equity REIT for renewable-energy projects using taxable REIT subsidiary (TRS)

Case study: Kimco Realty

Overview

- REITs can establish taxable REIT subsidiaries (TRS) to develop, finance and own assets that do not comply with the REIT rules, including facilities that generate and sell renewable energy. The parent REIT owns the securities of the TRS and receives income from the TRS in the form of dividends. The value of all TRS stock held by a REIT cannot constitute more than 25 percent of a REIT's value. Dividends paid by TRS subsidiaries to the REIT are included in permissible cash income that can be earned by a REIT. A REIT's cash income from all sources, including its TRS subsidiaries, cannot constitute more than 25 percent of annual income through the 2017 tax year and 20% thereafter. TRS entities typically pay out 100 percent of their income as dividends to avoid tax at the corporate level.

Figure 5: Equity REIT for renewable-energy projects using taxable REIT subsidiary (TRS)



- The TRS structure has been used successfully by Kimco, the largest publicly traded owner and operator of open air shopping centers in North America.
- In 2010, Kimco opted to use a wholly-owned “taxable REIT subsidiary” or TRS, as the vehicle that would finance, develop and own Kimco’s rooftop solar systems. The TRS was formed to take advantage of cash grants available under the federal stimulus for investments in renewable energy property for which the parent REIT was not eligible.

What assets does the company hold in its portfolio?

- Kimco’s primary assets are the 727 shopping centers comprising its portfolio.
- The 3MW of solar assets on its shopping center rooftops are owned by the TRS.

How does the REIT meet the income test and asset test?

- Kimco meets the REIT income and asset tests because the REIT itself does not directly own the solar assets or sell electricity. Kimco’s TRS performs these functions. In addition, the TRS’s income and assets are small relative to those of the REIT, meeting IRS requirements related to the value of TRS stock and dividends as a percentage of the parent REIT’s assets and income.

What are the REIT’s income sources and the income’s tax status?

- Kimco’s primary income sources are standard ground leases from its tenants. The solar TRS earns payments from tenants under power purchase agreements (PPAs) and the sale of solar renewable energy credits (SRECs).
- Under the TRS, each of the six solar projects involved partnerships between Kimco’s TRS, the solar operator, and participating retail tenants, usually with long-term leases.
- The retail tenants agree to purchase discounted power for a multi-year period.
- Kimco’s unitholders receive additional income as dividends from the limited profits earned by the TRS, which pays taxes.¹

Who uses the renewable energy services?

- The rooftop PV systems operated by Kimco’s TRS provide electricity to the tenants of the shopping malls.
- The TRS is permitted to sell power generated to the building’s tenants, and it may manage all aspects of the project, including systems.
- Some of the larger department store tenants have entered into long-term PPAs with the TRS to lock in electricity rates.

¹ <https://www.irs.gov/pub/irs-soi/01reit.pdf>.

Hybrid REIT (debt and equity)

Case study: Hannon Armstrong Sustainable Infrastructure Capital, Inc., (HASI)

Overview

- HASI received a June 2013 private letter ruling from the Internal Revenue Service enabling it to provide mortgage financing for permanent building energy systems, including energy-efficiency and renewable-energy equipment, provided that the systems (i) are intended solely for the use of the building or facility, (ii) are not accessory to operation of a business, and (iii) are secured by both the energy system and the building or facility served by the system.

What assets does the company hold in its portfolio?

- HASI owns land leased to operators of wind and solar farms.
- HASI's portfolio is primarily comprised of debt and equity securities providing financing for projects serving the energy-efficiency, renewable-energy and infrastructure markets.
- HASI provides financing for three types of asset classes: energy-efficiency (EE) systems in buildings; renewable-energy, including solar PV and wind assets; and water and communications infrastructure.

How does the REIT meet the asset test?

- HASI's assets are primarily real property-secured mortgage loans, land and communications infrastructure, all of which are permitted assets for REITs. These assets constitute more than 75 percent of HASI's portfolio, thereby meeting the REIT asset test. HASI's mortgage loans for building energy systems are property-integrated, used solely for the benefit of the building or facility in which they are installed, and are secured by real property (the energy system and the building or facility served by the system). As noted above, these mortgage loans have been ruled qualifying REIT assets in an IRS private letter ruling.

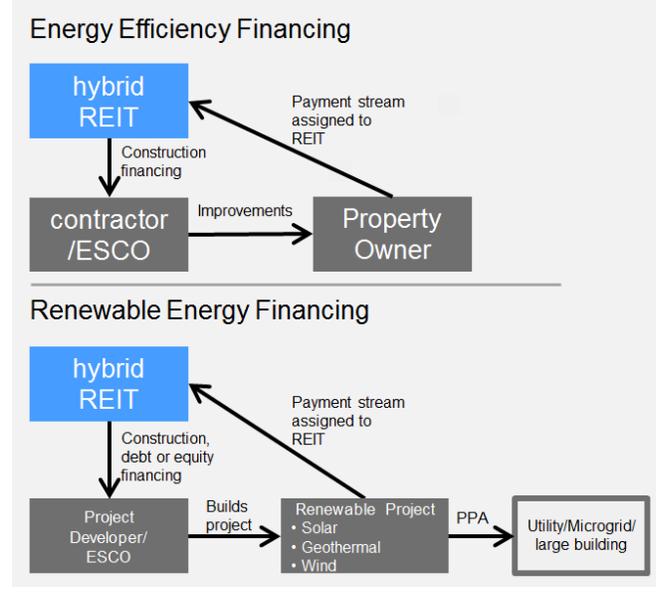
What are the REIT's income sources and the income's tax status?

- HASI's income is derived primarily from the interest on its mortgage loans. Mortgage loan interest is permitted REIT income.
- HASI also derives income from renting land for use by solar and wind projects. Rent is permitted REIT income.
- Mortgage interest and rents constitute over 75 percent of HASI's income, meeting the REIT income test.

Who uses the energy-efficiency/renewable-energy services?

- EE/RE projects: HASI finances the installation of energy systems, including energy-efficiency and renewable-energy improvements for a wide variety of commercial and government buildings. The loans are made to the ESCOs and project developers who install the systems. The energy systems are leased to building owners under capital leases. As loan security, the borrower assigns to HASI the lease payments made by the property owner. Financings are further secured by the energy improvements to the building and the underlying real estate. Projects typically have paybacks of one to ten years.
- RE projects: HASI rents land and provides debt and equity financing to solar or wind developers for renewable-energy projects, which provide renewable energy to the public under long-term power purchase agreements (PPAs) with utilities. The project developers are responsible for system construction and maintenance and negotiation of power purchase agreements. Project paybacks depend on the size of the project and the localized cost of traditional energy sources.

Figure 6: Hybrid REIT (debt and equity)



Equity REIT for conventional or renewable energy transmission & distribution

Case study: InfraREIT

Overview

- InfraREIT is an equity REIT that develops and owns electric transmission and distribution (T&D) assets, including power lines, substations, transmission towers, distribution poles, transformers and related property and assets. InfraREIT was formed in 2010 through conversion from a previous LLC.
- InfraREIT is managed by Hunt Utility Services LLC (23.4 percent pre-IPO ownership).
- InfraREIT is the first known model of a transmission and distribution (T&D) equity REIT.

What assets does the company hold in its portfolio?

- InfraREIT's subsidiary, SDTS, owns electric transmission and distribution (T&D) assets throughout Texas, including 620 miles of transmission lines and 35 substations.

How does the REIT meet the income test and asset test?

- A 2007 IRS private letter ruling validated the ownership by InfraREIT's predecessor of electricity transmission and distribution systems, qualifying these assets as appropriate REIT holdings.² Draft IRS regulations released in 2014 and under review as of October 2015 qualify transmission lines as assets that may be held by a REIT.

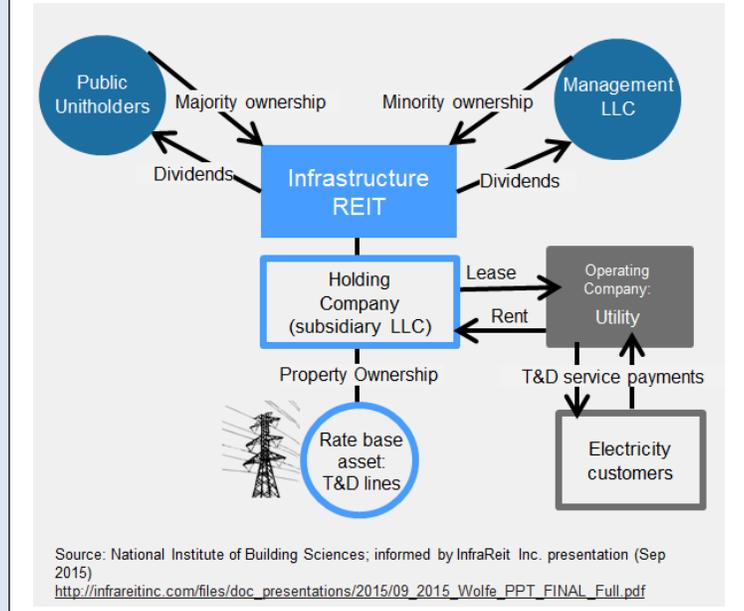
What are the REIT's income sources and the income's tax status?

- Revenue derives from the long-term exclusive lease of InfraREIT's T&D assets to a public utility. Lease income constitutes acceptable REIT income.
- Income base (2014): 75 percent transmission, 25 percent distribution.
- Lease terms: 80 percent to 90 percent of the rent is a fixed amount, paid monthly; 10 percent to 20 percent of the rent is variable, based on a percentage of the partnering utility's gross revenue less adjustment, paid quarterly.
- InfraREIT (like all REITs) receives a tax deduction equal to the amount of dividends the company distributes.

Applicability to renewable energy (RE) generation

- In a Dec 2014 filing with the SEC, InfraREIT disclosed that the uptake in building-integrated renewable energy systems and distributed generation may reduce the value of its rate base T&D assets, thus adversely affecting its business model.
- On the other hand, InfraREIT is expected to grow through expansion into T&D acquisition and development projects in Arizona and New Mexico, where growing demand for utility scale solar and wind farms is expected to generate infrastructure build out requirements. T&D assets can serve utilities powered by renewable energy, which transmit electricity through the transmission grid.

Figure 7: Equity REIT for conventional or renewable energy transmission & distribution



² InfraREIT ownership of electricity transmission and distribution systems, <http://infreitinc.com/about-infreit/our-history/default.aspx>.

B. Master Limited Partnerships

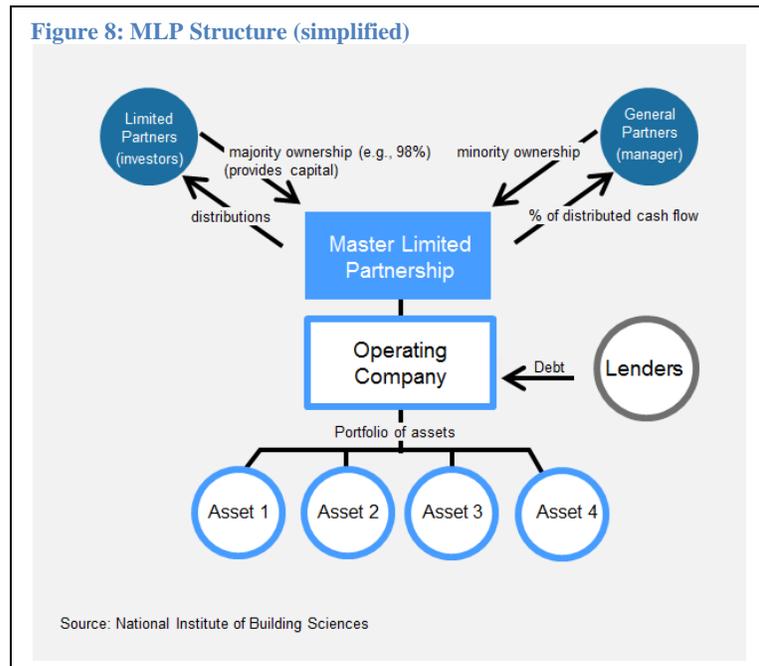
Master Limited Partnerships (MLPs), with market capitalization in October 2015 of \$394 billion, are a substantial source of exchange-traded equity capital for fossil fuel and other natural resources companies.⁴⁹ According to Chadbourne and Parke, 149 MLPs were traded on public exchanges as of May 2015. Of these, 93 (62 percent) were invested in oil and gas activities, while the remaining MLPs included seven coal mines, 10 entities engaged in marine transportation, four in propane and 10 in other natural

resources such as timber.⁵⁰ While MLPs were originally used for real estate investment activity, almost all have since converted to REIT status. REITs offer the same entity-level tax benefits as MLPs, while simplifying tax reporting and compliance for investors.⁵¹

MLPs were originally devised in the 1980s to make investment in assets subject to depletion—typically, oil and gas fields and mining projects—more attractive by creating a “flow through” partnership mechanism, removing taxation from the corporate level and shifting it down to unit holders. By distributing cash flow on a pretax basis, the MLP structure maximizes the amounts passed through to investors and avoids double taxation. The MLP structure also shelters income because deductions such as depreciation and depletion are also passed through to individual unit holders, offsetting taxable income.⁵²

The level of MLP distributions is established in the partnership agreement between the general partner(s) (who structure and manage the MLP and bear unlimited liability for debts) and limited partners (individual or institutional investors who have purchased MLP units, have no management authority, and whose losses are limited to the original amount invested). Typically, available cash flows are distributed primarily to limited

Figure 8: MLP Structure (simplified)



⁴⁹ Yorkville Capital Management, MLP Asset Class Overview, October 2, 2015,

<http://www.yorkvillecapital.com/asset-class-overview.aspx>.

⁵⁰ Chadbourne and Parke, “IRS Clarifies which companies may operate as master limited partnerships (MLPs); Section 7704(d)(1)(e); Qualifying activity; Qualifying income”, May 5, 2015,

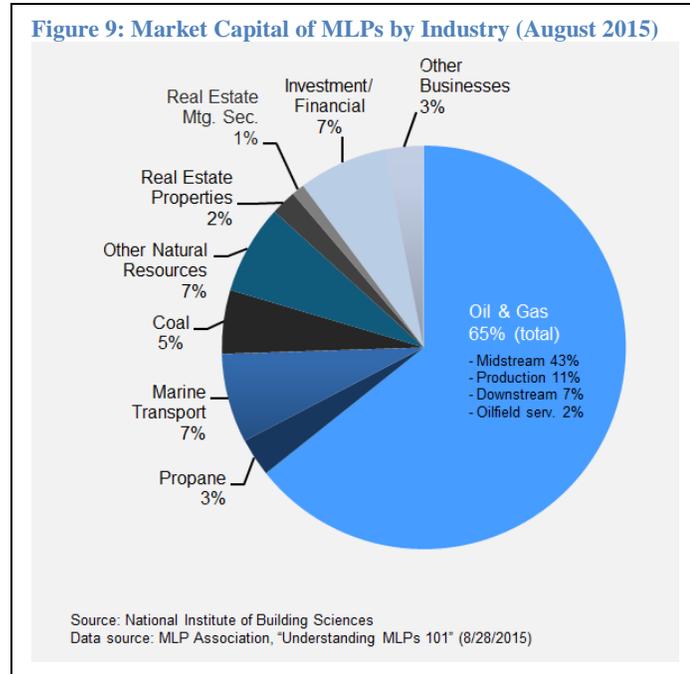
http://www.chadbourne.com/IRS_CLARIFIES_MLP_Section_7704_5-1-2015_projectfinance.

⁵¹ Feldman, David and Settle, Edward, *Master Limited Partnerships and Real Estate Investment Trusts: Opportunities and Potential Complications for Renewable Energy*, National Renewable Energy Laboratory, Technical Report NREL/TP 6A20-60413, November 2013, p. 5.

⁵² “MLP Basics”, Master Limited Partnership Association, <http://www.mlpassociation.org/mlp-101/>.

partners in the early years of the partnership; distributions to the general partners increase over time, after limited partners have received their required returns, as stipulated in the partnership agreement.⁵³

To qualify for MLP status, enterprises must be traded on a listed exchange, and must earn at least 90 percent of their gross income from passive sources (interest, dividends, rents and gains on the sales of real property or capital assets) and/or from activities tied to the exploration, development, mining or production, processing, refining, transport (including pipelines) or marketing



of any depletable mineral or natural resource.⁵⁴ MLPs are thus largely intended to mitigate investment risk associated with assets that can be exhausted over time. Sources of renewable energy are therefore not eligible for inclusions in MLPs, with two exceptions:

- Geothermal energy activities are eligible for inclusion in MLPs.
- The Emergency Economic Stabilization Act of 2008 (Public Law 110-343) expanded the definition of MLPs to qualify income coming from the transportation of certain renewable and alternative fuels such as ethanol and biodiesel.⁵⁵

By making partnerships eligible for public listing, the MLP structure broadens access to equity capital, thus minimizing financing costs and permitting secondary market trading. Investors in MLPs benefit from the pass-through of untaxed cash flows, the sheltering of income and the limited liability features of the partnership structure, as well as the liquidity provided by trading on public exchanges. With average dividend yields recently ranging from 4 percent to 7 percent,⁵⁶ MLPs are relatively cost-effective sources of capital.

⁵³ Latham and Watkins, "Master Limited Partnerships- 101", <https://www.lw.com/MLP-Portal/101>. Robert W. Baird, Incorporated, "Important Information About Master Limited Partnerships, 2015, <http://content.rwbaird.com/RWB/Content/PDF/Help/Important-information-about-MLPs.pdf>.

¹Ibid.

⁵⁵ Sherlock, Molly F. and Keightly, Mark P., "Master Limited Partnerships: A Policy Option for the Renewable Energy Industry", Congressional Research Service, June 28, 2011.

⁵⁶ Aaron Levitt, "Six MLPs to Buy for High Yield," *Investor Place*, April 23, 2015, http://investorplace.com/2015/04/mlp-mlps-master-limited-partnerships-epd-wpz-hep-tcp/#.VhMuAuGf_5w.

Pending Tax Revisions

On May 5, 2015, the IRS confirmed the types of minerals and natural resources businesses that may operate as MLPs, giving most companies at least ten years to adjust to the new rules. The restatement follows a growing number of requests from oil field services companies to be able to operate as MLPs. According to Chadbourne and Parke, the proposed regulations treat income as qualifying income only if it comes from engaging directly in exploration, development, mining or production of minerals or natural resources or from providing a limited class of services to companies that are directly engaged in such activities. Such services must be “specialized,” “essential” and “significant” to mineral exploration, development, processing or refining. By way of example, the delivery of water for drilling or the monitoring of methane emissions would qualify; legal, insurance or finance services would not.⁵⁷

Extending MLP Status to Renewable Resources

At present, renewables lack public capital markets parity with fossil fuels, thus constraining market growth and increasing financing costs. At present, renewables are capitalized substantially through tax equity financing, supplied by sophisticated investors who desire to shield income from federal taxation. Such financings are expensive to source and negotiate because transactions are customized to the requirements of the project and the investor. In addition, the capital pool is small. A 2012 study cited by NREL found that “the complexity of tax-equity-based finance has limited the number of tax equity investors to fewer than 20, and the amount of tax equity to \$3 to \$6 billion per year for the entire renewable-energy industry” in recent years.⁵⁸

In addition, the uncertain status of the federal tax credits on which renewable-energy financings rely threatens capital formation through tax equity vehicles. According to the U.S. Partnership on Renewable Energy Finance, failure to extend the federal production tax credit beyond 2014⁵⁹ could have reduced the volume of new wind installations by as much as 73 percent, while the scheduled 2016 investment tax credit decrease from 30 percent to 10 percent for commercial solar systems and the expiration of the credit for residential systems could cause a 50 percent drop in solar installations.⁶⁰

As suggested by the foregoing, the financing of renewable energy rests on a shaky platform. Extension of MLP status to renewable-energy technologies would allow the sector to access the public capital markets under favorable tax treatment, thereby broadening the pool of potential investors, enhancing market liquidity, and reducing financing costs.

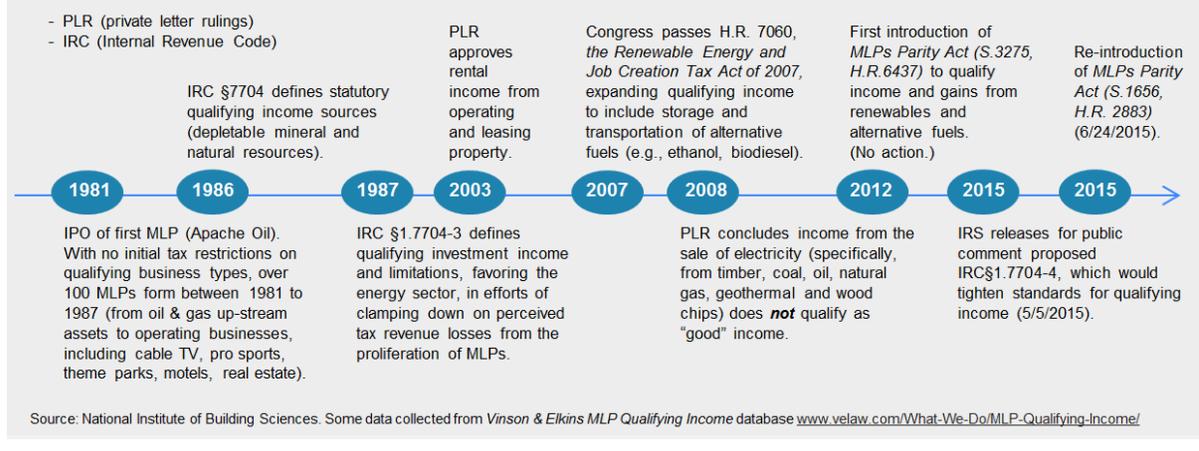
⁵⁷ Chadbourne and Parke, “IRS Clarifies which companies may operate as master limited partnerships (MLPs); Section 7704(d)(1)(e) ; Qualifying activity; Qualifying income,” May 5, 2015, http://www.chadbourne.com/IRS_CLARIFIES_MLP_Section_7704_5-1-2015_projectfinance.

⁵⁸ Michael Mendelsohn and David Feldman, *Financing U.S. Renewable Energy Projects through Public Capital Vehicles: Qualitative and Quantitative Benefits*, National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-58315, April 2013, p. 3. <http://www.nrel.gov/docs/fy13osti/58315.pdf>.

⁵⁹ Congress extended the renewable energy production tax credit retroactively for 2015 and through December 31, 2016 under the *Consolidated Appropriations Act, 2016* (H.R.2029), signed into law on December 18, 2015.

⁶⁰ U.S. Partnership for Renewable Energy Finance, “Why Policy Matters—Renewable Energy Market Momentum at Risk”, white paper summary, July 2015, <http://uspref.org/white-papers>.

Figure 10: MLP Timeline



The Master Limited Partnership Parity Act (S. 1656, H.R. 2883), bipartisan federal legislation that would extend the use of MLPs to the clean-energy sector, was introduced in Congress in June 2015 by Senators Christopher Coons and Jerry Moran and Representatives Ted Poe and Mike Thompson. The bill, which was referred to the Senate Finance and House Ways and Means Committees, would extend MLP status to businesses that generate at least 90 percent of their income from the generation of renewable energy, energy property equipment, and the production, storage and transport of renewable fuels.

Energy technologies included in the legislation include wind, closed and open loop biomass, geothermal, solar, municipal solid waste, hydropower, marine and hydrokinetic, fuel cells, and combined heat and power. The legislation also grants MLP status for building energy-efficiency upgrades related to lighting, HVAC and hot water systems, and the building envelope; electricity storage; carbon capture and storage; renewable chemicals; and waste-heat-to-power technologies. MLP status would also be extended to the production, storage and transport of a range of bio-based fuels, including cellulosic, ethanol, biodiesel, and algae-based fuels.

The Master Limited Partnerships Parity Act offers clean-energy projects access to the tax and liquidity benefits currently available to the fossil fuel industry. The bill would provide limited partner investors with the advantages of limited liability, the untaxed distributions of pretax income and heightened liquidity. Equally important, the bill would give clean-energy investments access to the public equity markets with cheaper costs of capital, and to a wider investor base, including tax exempt institutional investors such as pension funds and sovereign wealth funds, and investors with limited tax liabilities, such as retail stockholders, who lack an appetite for the tax equity structures that now dominate the financing of renewables.⁶¹

⁶¹ Felix Mormann and Dan Reicher, *Invest But Reform: Smarter Finance for Cleaner Energy: Open Up Master Limited Partnerships (MLPs) and Real Estate Investment Trusts to Renewable Energy Investment (REITs)*, Brookings Institution, Steyer-Taylor Center for Energy Policy and Finance, Stanford University, November 13, 2012, p. 2, <http://www.brookings.edu/research/papers/2012/11/13-clean-energy-investment>.

The extension of MLP status to the clean-energy sector appears fiscally sound. In 2013, Congress's Joint Committee on Taxation scored the budget impact of an earlier and substantially similar version of the Master Limited Partnerships Parity Act as costing the federal government just \$307 million over 5 years and \$1.3 billion over 10 years.⁶² The benefits in capital formation, jobs and energy savings would far outstrip the cost.

Note that the Master Limited Partnerships Parity Act does not propose relaxing the passive loss and at-risk rules for MLP investment in renewable energy, thereby restricting the tax benefits available to individuals, S corporations and closely held C corporations.⁶³ Specifically:

- Under the passive loss rules, individuals, S corporations and closely held C corporations are restricted in deducting losses to the extent of their equity investment; losses may not be taken to shelter ordinary income.
- Under the at-risk rules, individuals, S corporations and closely held C corporations may not take deductions for interest paid on non-recourse debt (that is, debt secured by property with no recourse to the borrower).⁶⁴

The passive loss and at-risk rules relax these requirements for oil, gas and low-income housing, but not for renewable energy.⁶⁵ Many believe that the relaxation of these rules for renewables is needed to make renewable energy a truly attractive MLP investment. At the same time, this change would make the Master Limited Partnerships Parity Act a far more expensive undertaking, thus limiting its chances of Congressional passage in the near term.

The absence of an MLP financing option for renewable-energy companies is one of the reasons behind the recent increasing popularity of Yieldcos, described below.

C. Yieldcos

The Yieldco investment structure dates from 2013. Yieldcos are publicly traded entities that invest in contracted renewable-energy assets that earn stable cash flows subsequently distributed to shareholders as dividends. The term “Yieldco” denotes the ability of these investments to generate immediate cash flow and dividends due to their status as operating companies whose energy output has been pre-sold under power purchase agreements (PPAs).

⁶² Felix Mormann, Dan Reicher and Mark Muro, *Clean Energy Scores a Success with the Master Limited Partnership Parity Act*, Brookings Institution, December 19, 2013, <http://www.brookings.edu/research/opinions/2013/12/19-clean-energy-mormann-reicher-muro>.

Budget scoring for the June 2015 legislation had not been completed at the time that this study was prepared. Budget scoring for the bill is expected to yield results similar to those modeled in 2013.

⁶³ Keith Martin, “Drive to Reduce the Cost of Capital,” Chadbourne and Parke LLC, April 2013, p.4.

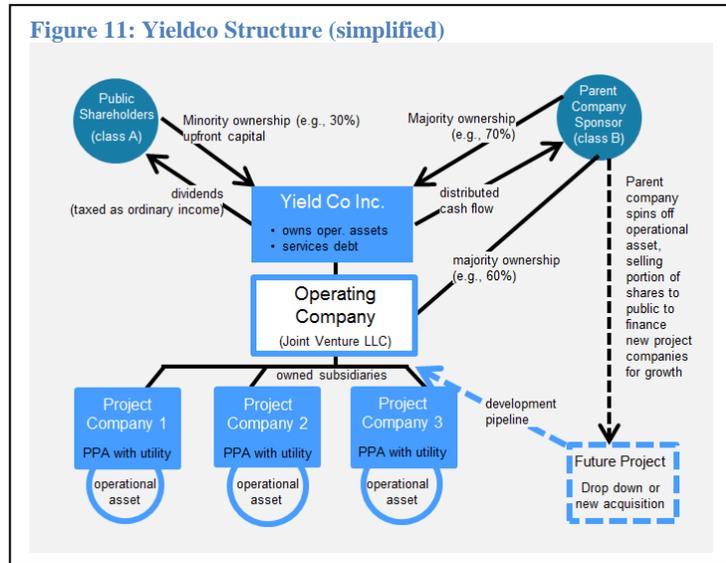
⁶⁴ David Burton, “Hunting Unicorns—Individuals as Tax Equity Investors,” *Project Perspectives*, Akin Gump Strauss Hauer & Feld, 2012, p. 14.

⁶⁵ Keith Martin, “Drive to Reduce the Cost of Capital,” Chadbourne and Parke LLC, April 2013, p.4.

Renewable-energy projects are typically financed through a combination of tax equity, debt and sponsor equity contributed by the developer. Tax equity, supplied by investors who are looking to offset federal tax liability, can range from 35 percent to 50 percent of project cost and is used primarily to monetize the federal investment tax credit (ITC) and production tax credit (PTC) available to renewable-energy projects.⁶⁶

Tax equity financing is typically expensive to source due to

search and transaction costs. The remaining funds are contributed as equity by the developer, generally in combination with debt financing.



By raising capital through the sale of stock, Yieldcos allow early-stage investors and developers of renewable-energy projects to monetize their initial equity investment and pay off project debt. As described by one industry expert, “A [renewable energy] development company separates its operating projects from its development pipeline. It puts the operating projects in a separate corporation that lists on a stock exchange and is able to raise capital more cheaply because its projects are de-risked; they have operating histories.”⁶⁷

Yieldcos thus offer the renewable-energy industry a financing mechanism whereby investors can obtain low-risk yields through an investment in a dividend-paying public company. The sale of stock in the public markets allows project developers to access larger pools of investors, including tax exempt institutional investors who do not need to shield tax liability (pension and sovereign wealth funds) and investors without significant tax liability, including many individual investors.

⁶⁶ Kaye Scholer, *Investment and Financing Opportunities in Alternative Energy 2015*, Kaye Scholers in association with Clean Energy Pipeline, pp.1, 5, <http://www.kayescholer.com/in-the-market/publications/newsletters/20150416-kaye-scholer-clean-energy-pipeline-release-timely-report-on-alternative-energy-and-related-infrastructure>, p. 1. The federal investment tax credit (ITC), active through December 31, 2016, provides a 30 percent tax credit for investment in solar, small wind and fuel cell technologies, and a 10 percent credit for investment in geothermal, microturbine, combined heat and power, and groundwater thermal technologies. See Internal Revenue Service, Notice 2015-70, October 2, 2015 and <http://energy.gov/savings/business-energy-investment-tax-credit-itc>. The federal production tax credit (PTC) for renewables applies to property placed in service by December 31, 2014 and provides a tax credit of \$.023 per kilowatt hour (kWh) of power generated by wind, geothermal and closed-loop biomass projects, and a credit of \$.011/kWh of power generated by open-loop biomass, land-fill gas, municipal solid waste, marine, hydrokinetic and qualified hydroelectric power. The duration of the credit is typically ten years. <http://energy.gov/savings/renewable-electricity-production-tax-credit-ptc>.

⁶⁷ Chadbourne and Parke, “Yield Cos: State of Play,” February 2015, http://www.chadbourne.com/Yield-Cos-State-Of-Play-02-18-2015_projectfinance.

Yieldco Market Challenges: Sun Edison and TerraForm Power

The U.S. Yieldco sector experienced a sharp price decline in 2015. Falling oil prices led to concerns about continuing demand for renewable energy,¹ while expectations of near-term interest rate increases² raised questions about the ongoing ability of Yieldcos to generate competitive returns relative to other investments. Rising acquisition costs for renewable-energy projects, fueled by increasing competition among Yieldcos,³ created further uncertainty about the sector's long-term performance.

Sun Edison, the world's largest renewable energy developer, and TerraForm Power, the Yieldco that it had formed to purchase and hold its operating renewable energy facilities in the U.S. and other developed markets, were particularly hard hit by the slump. As of mid-November 2015, Sun Edison stock suffered an 82 percent year to date price decline, while shares in TerraForm Power had dropped approximately 52 percent.⁴

The experience of Sun Edison and TerraForm Power illustrate some of the risks that can affect Yieldcos and their sponsors in the face of unfavorable market conditions:

- **Inability of Yieldco to continue anticipated project purchases.** Yieldcos typically rely on the issuance and sale of stock to raise equity for renewable energy project purchases. As the price of TerraForm Power's shares declined during 2015, the Yieldco was unable to raise sufficient capital to purchase additional solar power projects developed by its sponsor, Sun Edison. This condition is expected to persist through 2016, according to Sun Edison's CEO. Uncertainty also developed surrounding the \$2.2 billion acquisition of Vivint Solar, a joint purchase by Sun Edison and TerraForm Power expected to close by the end of 2015. These developments helped to depress share prices for both TerraForm Power and Sun Edison. Pending TerraForm's recovery, Sun Edison has begun to market its projects for sale to outside buyers and has formed, in cooperation with Goldman Sachs, a private "warehouse" fund to acquire and hold some of its development projects.⁵ Despite these corrective efforts, Sun Edison stock had not rebounded as of mid-November 2015.⁶
- **Weakening of sponsor's balance sheet.** If a sponsor owns a significant stake in a Yieldco, a decline in the Yieldco's share price may depress the sponsor's stock. As TerraForm Power's performance deteriorated, its decline adversely affected the stock of Sun Edison, which owns 43 percent of TerraForm Power and is its controlling shareholder.
- **Governance considerations.** Independent shareholders in TerraForm Power have expressed concern about its independence from Sun Edison in making project acquisition and divestment decisions.

While the decline in Sun Edison's fortunes was also linked to unfavorable operating results and a substantial debt load,⁷ the drop in its share price was materially influenced by the problems of the TerraForm Power Yieldco. Similar difficulties were encountered industry-wide during 2015. As of November 2015, an estimated \$26 billion in renewable energy project sales had been sidelined by the decline in Yieldco stock prices.⁸

¹ Sivaram, Varun, "Oil's downward spiral is spooking renewable energy investors," *Fortune*, 9/5/2015 <http://fortune.com/2015/09/05/oil-prices-renewable-energy-yieldcos/>.

² Kaminska, Izabella, "Yieldcos and interest rates." *Financial Times*, 10/2/2015 <http://ftalphaville.ft.com/2015/10/02/2141498/yieldcos-and-interest-rates/>.

³ Goossens, Ehren, "Market 'Saturated' by Yieldcos After 15 IPOs, Says NRG Yield CEO," *Bloomberg Business*, 8/5/2015, <http://www.bloomberg.com/news/articles/2015-08-05/market-saturated-by-yieldcos-after-15-ipos-says-nrg-yield-ceo>.

⁴ Jhonsa, Eric, "Sun Edison down 23% amid liquidity fears, Vivint's Earnings, hedge fund disclosures," *Seeking Alpha*, November 17, 2015, <http://seekingalpha.com/news/2935786-sunedison-down-another-23-percent-amid-liquidity-fears-vivints-earnings-hedge-fund-disclosures>. "UBS Downgrades TerraForm Power (TERP) to Neutral with Price Target \$14.00," *Newswatch International*, November 17, 2015, <http://newswatchinternational.com/news/ubs-downgrades-terraform-power-terp-to-neutral-with-price-target-14-00.html>. Note that TerraForm Global, Sun Edison's Yieldco for emerging markets projects, also experienced substantial losses as of November 2014 r.

⁵ "SunEdison, WSIP form \$1 billion warehouse investment vehicle." *Greentech Lead*, 8/18/2015, <http://www.greentechlead.com/news/sunedison-wsip-form-1-billion-warehouse-investment-vehicle-27553>.

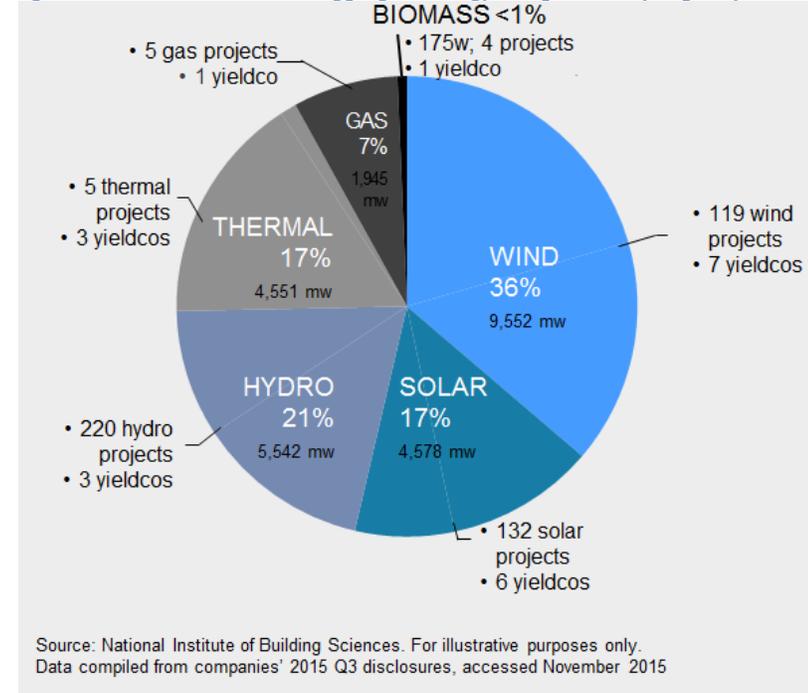
⁶ "SunEdison, Inc. Historical Stock Prices," *Nasdaq*, last accessed 11/18/2015, <http://www.nasdaq.com/symbol/sune/historical>.

⁷ Alloway, Tracy, "Investors Are Asking Tough Questions About 'Yieldcos,'" *Bloomberg*, 10/2/2015, <http://www.bloomberg.com/news/articles/2015-10-02/investors-are-asking-tough-questions-about-yieldcos->

⁸ Mark Chediak, Chris Martin, "The \$26 Billion Hole That Has Clean Power Scrambling For Cover," *Bloomberg*, November 3, 2015, <http://www.bloomberg.com/news/articles/2015-11-03/the-26-billion-hole-that-has-clean-power-scrambling-for-cover>.

As of early 2015, U.S. Yieldcos had a market capitalization of approximately \$12 billion.⁶⁸ As of 2014, the six Yieldcos listed on North American exchanges—NRG Yield, TransAlta Renewables, Pattern Energy Group, Abengoa Yield, NextEra Energy Partners and TerraForm Power—collectively held 3.8 Gw (gigawatts)⁶⁹ of effective renewable-energy capacity (that is, project capacity

Figure 12: US-listed Yieldcos: aggregate energy composition by capacity (mw)



multiplied by the stake acquired), almost 50 percent more than the 2.6 Gw acquired in 2013.⁷⁰ By mid-2015, nine Yieldcos were traded on U.S. exchanges (see Figure 13).

Tax Treatment and Growth Requirements

Yieldcos subject to U.S. tax law⁷¹, unlike REITs and MLPs, are liable for corporate income tax. To offset or minimize taxable income, Yieldcos generate tax losses through the application of depreciation (typically five years)⁷² on renewable-energy assets; deductible expenses; the carry forward of net operating losses; federal Section 48 investment tax credits (three to ten years in duration); and federal Section 45 production tax credits (typically ten years in duration) on electricity produced.⁷³ Because Yieldcos

⁶⁸ Chadbourne and Parke, “Yield Cos: State of Play,” February 2015, http://www.chadbourne.com/Yield-Cos-State-Of-Play-02-18-2015_projectfinance.

⁶⁹ A gigawatt (GW) is equivalent to 1,000 megawatts (Mw), or one billion watts of power.

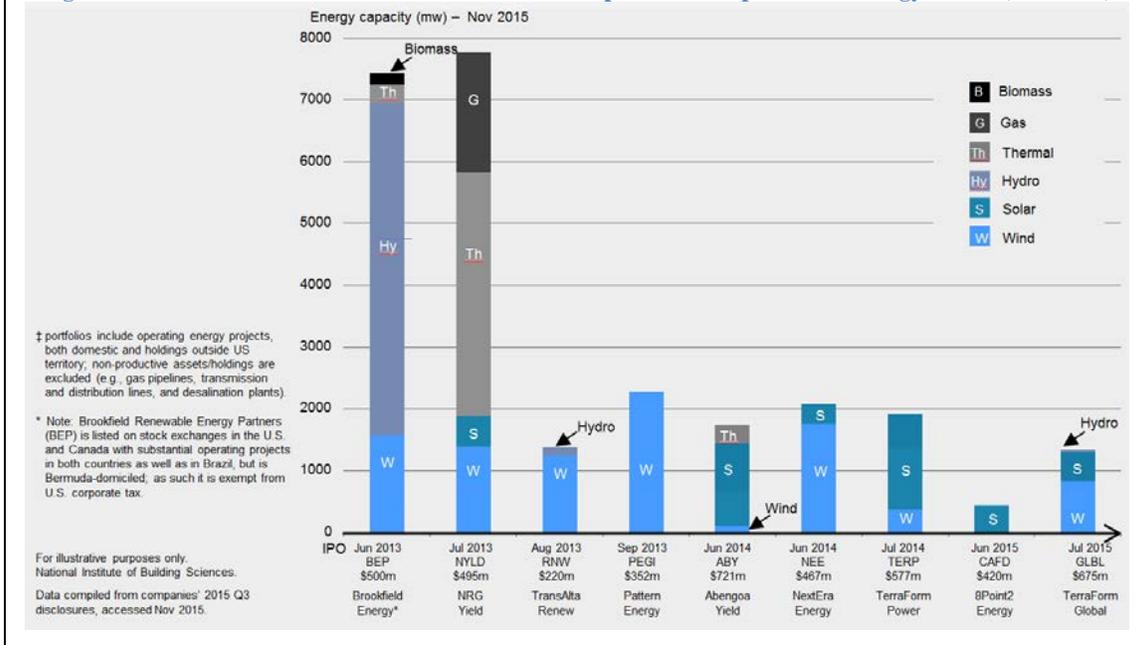
⁷⁰ Kaye Scholer, *Investment and Financing Opportunities in Alternative Energy 2015*, Kaye Scholers in association with Clean Energy Pipeline, pp.1, 5, <http://www.kayescholer.com/in-the-market/publications/newsletters/20150416-kaye-scholer-clean-energy-pipeline-release-timely-report-on-alternative-energy-and-related-infrastructure>.

⁷¹ Yieldcos have also been formed outside the U.S., chiefly in Canada, the UK and Spain. This discussion applies only to Yieldcos subject to U.S. taxation.

⁷² U.S. Partnership for Renewable Energy Finance, *MACRS Depreciation and Renewable Energy Finance*, undated, p. 3.

⁷³ See note 43 for durations of the investment and production tax credits. Kaye Scholer, *Investment and Financing Opportunities in Alternative Energy 2015*, Kaye Scholers in association with Clean Energy Pipeline, pp.1, 5, <http://www.kayescholer.com/in-the-market/publications/newsletters/20150416-kaye-scholer-clean-energy-pipeline-release-timely-report-on-alternative-energy-and-related-infrastructure>.

Figure 13: Timeline of IPOs for US-listed Yieldcos and portfolio composition of energy assets[†] (Nov 2015)



seek to eliminate the payment of tax at the corporate level, they are frequently referred to as “synthetic MLPs.”

As the projects in a Yieldco mature, deductible expenses, net operating losses, depreciation and tax credits diminish, eventually becoming insufficient to shield the Yieldco from federal tax liability.⁷⁴ As a result, Yieldcos can continue to minimize their federal tax obligations only by developing or continually acquiring new operating projects at the beginning of their life cycle. To address this need, Yieldcos are frequently structured with a “right of first offer” with respect to the development stage projects retained by the sponsor, exercisable as such projects become operational. The depth of the deal pipeline varies across the Yieldco sector. Some Yieldcos rely on an internal development pipeline provided by the sponsor. Others are wholly or partially dependent on acquiring projects developed by third parties.

Investment Performance and Outlook

Yieldcos have typically achieved dividend yields of 2 percent to 5 percent⁷⁵ and have targeted total returns in the 15-20 percent range. It is uncertain whether these returns can be sustained over time, especially as Yieldcos are dependent on new development and acquisitions to generate continuing tax losses and dividend growth. To date, growth expectations for the sector have been based on the presence of inflation fee escalations in PPA contracts, the reinvestment of cash flow or retained earnings into new income-producing assets, and the issuance and sale of new shares to supply equity for project

⁷⁴ Kaye Scholer, *Investment and Financing Opportunities in Alternative Energy 2015*, Kaye Scholers in association with Clean Energy Pipeline, p. <http://www.kayescholer.com/in-the-market/publications/newsletters/20150416-kayescholer-clean-energy-pipeline-release-timely-report-on-alternative-energy-and-related-infrastructure>.

⁷⁵ Tom Konrad, “How Much Can Clean Energy YieldCo Dividends Grow?” Greentech Media, June 16, 2015, <http://www.greentechmedia.com/articles/read/how-much-can-yieldco-dividends-grow>.

acquisitions.⁷⁶ Increasing demand for clean energy could help to make Yieldcos viable over the long term, as would the realization of scale economies resulting from industry maturation.

The economics of selling electricity, however, seem to indicate that a 15 percent to 20 percent return may be difficult to sustain over time.⁷⁷ First, the inflation escalations in PPA contracts are limited, typically to 2 percent or less.⁷⁸ Second, competition for renewable-energy assets will increase as the industry expands and as pension funds and private equity investors expand their infrastructure holdings, potentially depressing yields.⁷⁹ Third, the issuance of new shares to generate capital for new acquisitions and dividend distribution is an effective growth strategy only if share prices continue to increase over time.⁸⁰ The summer 2015 sell-off in solar Yieldcos, which saw the Global Yieldco Index drop by 24 percent from its April 2015 peak, is indicative of the limitations of this strategy and demonstrates the challenges facing the Yieldco market as does the 2015 experience of Sun Edison and its TerraForm Power Yieldco (see sidebar).⁸¹

Challenges facing the Yieldco sector⁸² include the following:

- Increasing competition in the industry due to the entrance of new firms may drive project acquisition prices higher and reduce yields. Concern is emerging that Yieldcos with limited internal development pipelines may be overpaying for assets.
- Yieldco dividends, attractive during an era of low interest rates, will become less competitive as interest rates rise.
- Decreasing oil and gas prices may depress demand for renewable energy, suppressing sector growth and reducing share prices.

The uncertainty surrounding the continuation of federal production and investment tax credits for renewable energy further reduce the efficacy of Yieldcos as a capital raising tool. If these concerns are correct, Yieldcos are likely to experience a slowdown in

⁷⁶ Tom Konrad, “How Much Can Clean Energy YieldCo Dividends Grow?” Greentech Media, June 16, 2015, <http://www.greentechmedia.com/articles/read/how-much-can-yieldco-dividends-grow>.

⁷⁷ Depending on market conditions, listed MLPs can and do offer these levels of combined (share price and dividend) yields, but market conditions change.

⁷⁸ Tom Konrad, “How Much Can Clean Energy YieldCo Dividends Grow?” Greentech Media, June 16, 2015, <http://www.greentechmedia.com/articles/read/how-much-can-yieldco-dividends-grow>

⁷⁹ Chadbourne and Parke, “Yield Cos: State of Play,” February 2015, p.8, http://www.chadbourne.com/Yield-Cos-State-Of-Play-02-18-2015_projectfinance.

⁸⁰ Tom Konrad, “How Much Can Clean Energy YieldCo Dividends Grow?” Greentech Media, June 16, 2015, <http://www.greentechmedia.com/articles/read/how-much-can-yieldco-dividends-grow>.

⁸¹ Trefis, “Why Have Solar Yieldco Stocks Been Trending Lower?” September 18, 2015, <http://www.trefis.com/stock/spwr/articles/314069/why-have-solar-yieldco-stocks-been-trending-lower/2015-09-18>.

⁸² See Chadbourne and Parke, “Yield Cos: State of Play,” February 2015, p.8, http://www.chadbourne.com/Yield-Cos-State-Of-Play-02-18-2015_projectfinance; Tom Konrad, “Are YieldCos Overpaying for Their Assets?” Greentech Media, June 15, 2015, <http://www.greentechmedia.com/articles/read/are-yieldcos-overpaying-for-their-assets>; and Trefis, “Why Have Solar Yieldco Stocks Been Trending Lower?” September 18, 2015, <http://www.trefis.com/stock/spwr/articles/314069/why-have-solar-yieldco-stocks-been-trending-lower/2015-09-18>.

growth due to difficulties in meeting investors' return expectations. In that event, well-capitalized Yieldcos with substantial internal pipelines of captive, high quality projects offer the greatest possibility of sustaining long-term growth. By contrast, Yieldcos that rely on third-party acquisitions are more likely to encounter difficulties in generating required yields and maintaining share prices. Over time, it would appear that the use of the Yieldco structure may be most viable for a limited number of larger sponsors with significant project pipelines. Yet, this advantage was questioned during the 2015 market sell-off, as investors expressed concerns about Yieldcos' abilities to make investment decisions independent of the interests of their sponsors.

In light of recent and emerging limitations surrounding the use of Yieldcos, the extension of MLP use to the renewable-energy sector would provide a more stable vehicle for raising capital than is provided by Yieldcos. Unlike Yieldcos, MLPs achieve favorable tax treatment at the entity level without being required to continually acquire new projects, and regardless of the availability of federal renewable-energy investment and production tax credits. Should the MLP structure become available for renewable energy, it seems likely that Yieldcos would convert to MLP status.

III. Conclusions

The preceding review seeks to illuminate key elements for consideration by policy makers seeking to improve access to the public equity markets for the renewable-energy industry and the development and retrofit of energy-efficient and sustainable commercial buildings. Such access would enhance the cost-effectiveness of these sectors and enhance the nation's energy security and economic resiliency.

Table 2: Comparison of Investment Vehicles

	REIT	MLP	Yieldco
Corporate Structure and Tax Status			
History:	55 years (1960)	34 years (1981)	<3 years (2013)
Primary industry/asset:	Real estate	Energy (oil & gas distribution)	Renewable energy
Type of entity:	Corporation, trust or association	LLC or Publicly-Traded Partnership (“PTP”)	C-Corp
Type of equity securities:	Shares or units	Units	Shares (Class A common stock to public; Class B common stock to parent company, held in majority)
Tax status:	Not taxable at entity level	Not taxable at entity level	Taxable at entity level. A typical Yieldco expects its dividend to be fully tax-sheltered for several years through the entity’s tax credits, depreciation allowance and net operating losses (NOLs).
Period during which federal income taxes expected to be insignificant:	Infinite	Infinite	Approximately 5 to 10 years for each acquired project, due to NOLs.
Investors, Distributions, Assets and Income Sources			
Investor base:	Retail, institutional	Retail (~70 percent); increasing institutional	Retail, institutional
Distribution type and requirements:	Dividends; IRS requires dividend payout of 90 percent of income	Distributions; Partnership agreement requires payout of distributable cash flow	Dividends; unrestricted (typical Yieldcos distribute ~70 to 90 percent available cash flows to shareholders)
Key qualifying assets:	≥75 percent in real property per IRS (excludes renewable generating equipment considered personal property)	Exhaustible resources that generate qualified income per IRS (exclude renewables, utilities)	Unrestricted
Income requirements:	≥75 percent of income must be from passive real estate sources (rents, mortgage interest, gains on real estate sales). ≥20 percent of income must be from other passive sources (dividends, interest, capital gains).	≥90 percent of income from exploration, development, mining, production, processing, refining or transport of depletable resources and/or passive sources (interest, dividends, rents and gains on real property or capital asset sale).	Income is derived from contracted revenue streams (typically power purchase agreements) with limited organic growth. To avoid federal corporate income tax, must continuously acquire new operating projects with fresh tax benefits.
Renewable Energy* (RE) Portfolio and Energy Efficiency (EE) Status			
RE legal eligibility:	With restrictions, equity REITs may host RE projects through a taxable REIT subsidiary (TRS).	Prohibited. (Pending MLP Parity Act approval.)	No restrictions.
EE status:	EE projects in buildings are widely undertaken.	N/A	N/A
<p>*For US-listed portfolios; renewable: excludes renewable fuel ethanol and biomass; includes solar PV, wind and hydro. Adapted from Moody’s, January 2015 http://rmgfinancial.com/core/files/rmgfinancial/uploads/files/Analyzing%20Yieldcos%20-%20M%20Manabe.pdf; additional data from NIBS research, including Latham & Watkins (2/18/2014), http://www.lw.com/thoughtLeadership/lw-mlp-yieldco-comparison.</p>			

Key findings

1. Access to the public equity markets increases the supply of capital and reduces project financing costs. To date, renewable-energy projects have raised some 35 percent to 50 percent of development capital from private tax equity financings, which allow investors to shield income from federal taxation. These financings are expensive to source and negotiate because transactions are customized to the requirements of the project and the investor. In addition, tax exempt investors and investors without significant tax liability, such as sovereign wealth funds, pension funds and many small retail investors, may lack an appetite for tax-driven deals. To expand development, renewable-energy projects are especially in need of enhanced access to the public capital markets. Improved access to public markets would increase the pool of potential investors and reduce transaction costs for renewable-energy projects, helping to make the sector more cost-competitive.
2. Tax incentives remain important drivers of investment in renewable energy and the development and retrofit of energy-efficient commercial buildings. Tax incentives have acted as key drivers in the financing of renewable energy and building energy efficiency. REITs and MLPs, which allow the distribution of untaxed income to investors, have proven effective and efficient mechanisms for raising investment capital, as have the federal Section 48 investment tax credit and the Section 45 production tax credit for renewable-energy projects, and the Section 179 (D) tax deduction for commercial building energy efficiency. Regulations affecting these parts of the tax code would benefit from being updated regularly to reflect technology advances in renewable energy and building energy efficiency. In addition, the maintenance of reliable capital flows to the building energy-efficiency and renewable-energy sectors would be enhanced if these incentives were extended for multi-year periods or made permanent.
3. The renewable-energy sector requires a more reliable mechanism for accessing the public equity markets. While the Yieldco vehicle has been successfully used to raise some \$12 billion in financing for renewable-energy projects since 2013, Yieldcos must continually add new projects to meet their growth projections and to generate the tax losses that allow them to shield income from corporate taxation. It is unclear whether Yieldcos without substantial, internal pipelines of captive, high quality renewable-energy projects will be able to add sufficient numbers of new projects over time. In addition, market sell-offs that depress stock prices can prevent Yieldcos from continuing to acquire new assets at least temporarily. The viability of the Yieldco structure will be further threatened if the federal renewable-energy investment and production tax credits are allowed to expire.

The renewable-energy sector would be better served by a publicly-listed investment vehicle that would eliminate corporate income tax at the entity level, as do REITs for real estate ventures, and MLPs for investment in depletable

resources, including fossil fuels and minerals. The creation of such a vehicle is important to avoid the double taxation of income at the corporate and investor levels so as to create parity in lower-cost capital access between fossil energy and renewable-energy projects.

The Master Limited Partnership Parity Act, which would extend MLP status to the renewable-energy sector, would give parity to the renewable-energy sector in accessing the public equity markets.

Some have suggested that the usefulness of the Master Limited Partnership Parity Act might be enhanced by relaxation of the passive loss and at-risk rules for S corporations, closely-held C corporations and individuals who invest in renewable energy. Such a change, however, should be weighed against the added federal revenue loss that this modification would incur.

4. Real estate investment trusts are well-established mechanisms for raising public equity for commercial real estate, but would benefit from IRS clarification of the status of energy-efficiency and renewable-energy equipment as approved REIT assets and the types of REIT qualifying income that can be derived therefrom. REITs represent the largest and arguably most successful use of the public investment markets to finance the development and retrofit of commercial real estate, including sustainable and energy-efficient buildings, controlling some \$1.8 trillion in assets as of September 2015. At present, REITs can and do install building energy-efficiency equipment and sustainable features in their projects, extend loan financing for the development and retrofit of energy-efficient buildings, and rent land for occupancy by wind and solar farms that supply renewable-energy services to the public.

At the same time, the status of renewable-energy and building energy-efficiency equipment as suitable REIT holdings, or as security for REIT mortgage loans, falls in a gray area, as does the question of whether related income meets the REIT income test. While the IRS answered this building question in the affirmative in the 2013 Hannon Armstrong private letter ruling, the ruling is situation-specific, and cannot be generally applied. To date, the REIT asset and income rules have yet to confirm that building energy-efficiency and renewable-energy equipment are appropriate investments for REITs.

Draft IRS regulations have proposed that certain energy-efficiency equipment, including transmission lines and pipelines (inherently permanent structures); and wiring, plumbing systems, insulation, chimneys, central heating and air conditioning systems, central refrigeration systems and humidity control systems (structural components providing utility-like services to project occupants) be classified as appropriate REIT assets under a “safe-harbor” test. Other equipment would be evaluated under a prescribed multi-factor test to determine whether the asset is a permissible REIT holding. If REITs are to continue to provide important capital markets access for energy-efficient and sustainable buildings, it will be important to ensure that the final regulations allow REITs to invest in renewable-

energy systems, energy storage, combined heat and power, waste heat recovery and microgrid equipment that would furnish utility-like services to tenants. The proposed rules do not address the circumstances under which income related to these assets would be REIT-qualified, nor do they address the extent to which REITs would be permitted to sell energy back to the grid under net metering programs

5. Absent new federal legislation that expands permissible REIT activities, REITs are not appropriate tools to finance the production and sale of renewable energy to the public. REITs were devised to generate their income primarily from passive sources, including rents and mortgage loan interest. The production and sale of renewable energy to entities that do not occupy a REIT project would engage the REIT in the active conduct of a trade or business, a function incompatible with the purpose for which REITs were established. While REITs can conduct some renewable energy activities through taxable REIT subsidiaries, the stock of such subsidiaries can constitute only 25% of REIT assets through the 2017 tax year, and 20% thereafter. Dividends from a taxable REIT subsidiary are restricted to no more than 25% of REIT annual income.

Amid concerns about federal revenue loss, it seems unlikely that the U.S. Congress would expand the use of REITs to the production and sale of renewable energy. Recent Congressional REIT legislation has instead attempted to restrict the use of REITs, including a new law immediately taxing gains associated with corporate REIT conversions and a recent proposal restricting permissible REIT assets to classes with depreciation schedules of 27.5 years or longer.

In light of these considerations, MLPs appear to provide a better mechanism for extending tax-advantaged financing to the renewable-energy market.

6. Debt capital and leases are also important financing vehicles in mainstreaming the use of renewable-energy and building energy-efficiency technologies. In addition to the equity investment vehicles discussed in this report, green bonds, debt raised through crowdsourcing, and the lease of renewable-energy equipment are emerging sources of financing for renewable-energy and efficient building projects. These additional resources may offer timely and accessible support for lower-cost building efficiency and renewable-energy investments. These vehicles are beyond the scope of this study, but are important capital market tools supporting the growth of the building energy-efficiency and renewable-energy sectors.

Recommendations

1. The U.S. Congress should enact federal legislation to extend the use of Master Limited Partnerships to renewable energy. Unlike the fossil fuels sector, renewable-energy generation lacks a tax-advantaged investment vehicle to access the public equity markets.

Enactment of the proposed Master Limited Partnerships Parity Act, bipartisan legislation that would extend the MLP mechanism to the renewable-energy sector, would achieve this objective. As of the publication of this report, the legislation had been referred to the Senate Finance Committee and the House Ways and Means Committee.

Because renewable-energy transactions are already sheltered from federal taxation through the federal renewable-energy investment and production tax credits, the measure is unlikely to cause significant federal revenue loss, a result substantiated by Congressional budget scoring for an earlier version of the legislation. (Congressional budget scoring for the 2015 bill was pending as this report was completed.)

In considering the Master Limited Partnerships Parity Act, Congress might also want to evaluate the efficacy of relaxing the passive loss and at-risk rules associated with renewable-energy investment, as is done with oil, gas and low-income housing. This change would have to be weighed against concerns against federal revenue loss.

2. The U.S. Congress should implement federal tax legislation to support the use of renewable-energy and commercial building energy-efficiency technologies so as to promote U.S. economic competitiveness and energy security. Renewable-energy and building energy-efficiency measures should be considered comprehensively by Congress in forthcoming tax reform packages. The investment tax credit for renewable energy, the federal production tax credit for renewables and the principal federal tax incentive encouraging commercial building energy-efficiency improvements, Section 179 (D), will expire or be reduced sharply at the end of 2016. Making all of these measures permanent or, at minimum, extending them for multi-year periods, would bolster U.S. economic competitiveness, enhance the nation's energy security and allow these technologies to achieve parity with fossil fuels. Yieldcos would particularly benefit from the extension or permanent availability of the renewable-energy investment and production tax credits at levels in force through 2016.
3. IRS regulations should be clarified so as to encourage investment in renewable-energy technologies and the development and retrofit of energy-efficient and sustainable commercial buildings.
 - A) The IRS should clarify the definition of energy property that qualifies for the federal investment tax credit under Section 48 of the Internal Revenue Code, so as to include equipment that enhances the delivery and use of renewable energy, including power conditioning equipment, energy storage devices and similar technologies.
 - B) The IRS should clarify the definition of REIT assets under Section 856 of the Internal Revenue Code, so as to provide a safe harbor and/or a clear determination for building energy-efficiency and renewable-energy equipment used to provide utility-like services to building occupants. The regulations

should be broad enough to permit the use of microgrids, energy storage devices, combined heat and power, waste heat recovery and diverse renewable-energy technologies to supply utility services to project occupants.

- C) After determining which building energy-efficiency and renewable-energy assets can be held by REITs, the IRS should further clarify the extent to which income derived from these assets is REIT-qualified, as well as the extent to which REITs would be permitted to sell energy back to the grid under net metering programs

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This paper, produced by the National Institute of Building Sciences through its Council on Finance, Insurance and Real Estate (CFIRE), is intended, and should be considered, solely and strictly, as a general description and analysis of certain types of instruments currently used to finance renewable-energy and development and retrofit of energy efficient commercial buildings for the purpose of informing public policy and offering public policy recommendations on the subject. **This paper is not intended to, and does not, provide investment advice regarding any specific type of investment vehicle or instrument or any specific Real Estate Investment Trust, Master Limited Partnership, or Yieldco, and should not under any circumstances be considered or used as investment advice or for any other purpose for which it is not intended.**

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