



SCALING U.S. INSURERS' CLEAN ENERGY INFRASTRUCTURE INVESTMENTS

Challenges and Solutions
in the Clean Energy Transition

March 2019



The global clean energy transition is both essential and irreversible, and it will generate tens of trillions of dollars of clean energy investment opportunities over the decades to come. Energy market dynamics have shifted in favor of clean energy such as wind and solar, which increasingly out-compete new fossil fuel and nuclear power sources. For insurers, as the clean energy market continues to mature and expand into an established, large-scale marketplace, there is a growing and diversifying array of investment opportunities.

Just as clean energy has gone mainstream, so have opportunities for clean energy investment expanded across asset classes and sources of capital. The most recent research from energy investment experts highlights the many significant opportunities for investors to scale their clean energy investments while meeting their risk-return requirements.¹ It is clear now that more institutional investors are in fact materially increasing their clean energy investments, capturing a broad range of expanding opportunities with attractive investment fundamentals and long-term risk diversification benefits.

Similarly, companies across all sectors of the economy, from electric utilities to shipping to Information technology, are realizing the economic benefits of shifting to clean fuel sources as they make new commitments to meet their energy needs with renewable energy, greater energy efficiency, and electrification of vehicle fleets. Major corporations are moving to source their electric needs from 100 percent renewable energy² and some of the largest commercial banks have made, and are now executing, \$100 billion and greater commitments to invest in clean energy and other climate solutions.³

To take advantage of clean energy investment opportunities, insurers should reassess their strategic assets, build/acquire the right skills and capacity, engage with relevant service providers to ensure they are better attuned to the clean energy investment landscape, and take a fresh look at a broad range of clean energy investment vehicles. In doing so, insurers can promote the resilience of their portfolios and capture appropriate investment opportunities tied to a global clean energy transition that is irreversible, unstoppable, and crucial to a sustainable future.



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About Ceres:

Ceres is a sustainability nonprofit organization working with the most influential investors and companies to build leadership and drive solutions throughout the economy. Through powerful networks and advocacy, Ceres tackles the world's biggest sustainability challenges, including climate change, water scarcity and pollution, and human rights abuses. Our mission is to transform the economy to build a sustainable future for people and the planet.



About Impax Asset Management Group:

Impax Asset Management is experienced at investing in the opportunities arising from the transition to a more sustainable global economy. Founded in 1998, Impax offers a range of thematic and unconstrained global equity strategies as well as real asset funds focused on the growth opportunity arising from a sustainable economy. Our mission is to generate superior, risk-adjusted investment returns for our clients over the medium to long-term.

Executive Summary

U.S. insurers control a considerable proportion of assets—in 2016 U.S. property/casualty insurers held cash and invested assets of \$1.6 trillion, and life/health insurers held \$3.9 trillion.⁴ The majority of these assets are bonds. Additionally, insurers are particularly interested in direct investment in infrastructure due to a number of factors, including infrastructure's long duration, its stable and secure cash flows, as well as the diversification and risk-adjusted returns these assets offer. Insurers today are reevaluating their overall investment allocations with intent to increase their infrastructure investments, and clean energy infrastructure can be an ideal fit to meet insurers' investment goals, particularly when paired with their long-term liabilities.⁵

In this context, Ceres embarked on a study of insurers' appetites for clean energy infrastructure investing, including wind power, solar power, energy efficiency, and energy storage. The study sought to identify barriers and solutions to scaling such investments. Ceres' analysis included a survey of large insurance company groups—both property/casualty and life/annuity insurers—extensive interviews with insurer group investment professionals and clean energy experts, and the development of findings and recommendations aimed at offering action-and-solutions-oriented guidance to the industry.

Ceres found that there is growing appetite for clean energy infrastructure investment within the insurance industry. For example:

- 70 percent of the surveyed insurer groups had **increased their infrastructure investments** in the past two years;
- Insurer groups frequently identified **utilities, clean energy and transportation** as attractive infrastructure investments;
- 85 percent of the insurer groups surveyed contemplate investments in **renewable energy, energy efficiency and energy storage**;
- 52 percent of insurer groups surveyed have **explicit strategies and goals for clean energy infrastructure investments**; and
- More than 50 percent of insurer groups surveyed believe clean energy infrastructure investments **mitigate fossil fuel investment risk**.

However, insurers also identified important structural, economic, or regulatory challenges to scaling their clean energy infrastructure investments. These challenges range from a lack of familiarity with clean energy investing, to competition for attractive projects, to uncertainty concerning National Association of Insurance Commissioners (NAIC) bond credit rating designations and possible misclassification of clean energy infrastructure investments. To address these issues, this report offers clear, practical recommendations for insurers, regulators, the NAIC, and industry associations which are all critical to unlocking the industry's potential.



Insurers: Significant recommendations for insurers seeking to scale their clean energy infrastructure investments include: creating a clean energy deal subgroup within their infrastructure investment team; leveraging expertise through cross-functional collaboration between the underwriting and investment sides of the business; and, building a cadre of trusted external experts in engineering, resource assessment (i.e., to assess meteorological data) and clean energy finance to provide know-how and knowledge for clean energy investing.

Regulators and the NAIC: Important recommendations for state insurance regulators and the NAIC include issuing more transparent guidance regarding how the NAIC assesses all types of clean energy infrastructure investments, and working proactively with insurers to ensure that all deal participants are clear about expected regulatory treatment. It is also suggested that the NAIC develop deeper expertise in clean energy infrastructure projects so that these investments are assigned accurate credit designations, and therefore appropriate risk-based capital charges.

Industry Associations: Insurance industry associations can serve as advocates for insurers' interests and should provide companies with useful information. One suggestion for leading industry trade groups is to compile, maintain and disseminate a publication of insurers' optimal investment criteria for clean energy investments with sufficient documentation on levels of risk and third-party assessments. Such a publication would also include a section that defines engineering standards for clean energy investments. The guide could be distributed to all known agents, including commercial and investment banks, funds, institutional investors, private placement groups, and known issuers.

“Wind and solar are set to surge to almost “50 by 50”—50 percent of world generation by 2050—on the back of precipitous reductions in cost, and the advent of cheaper and cheaper batteries that will enable electricity to be stored and discharged to meet shifts in demand and supply.”

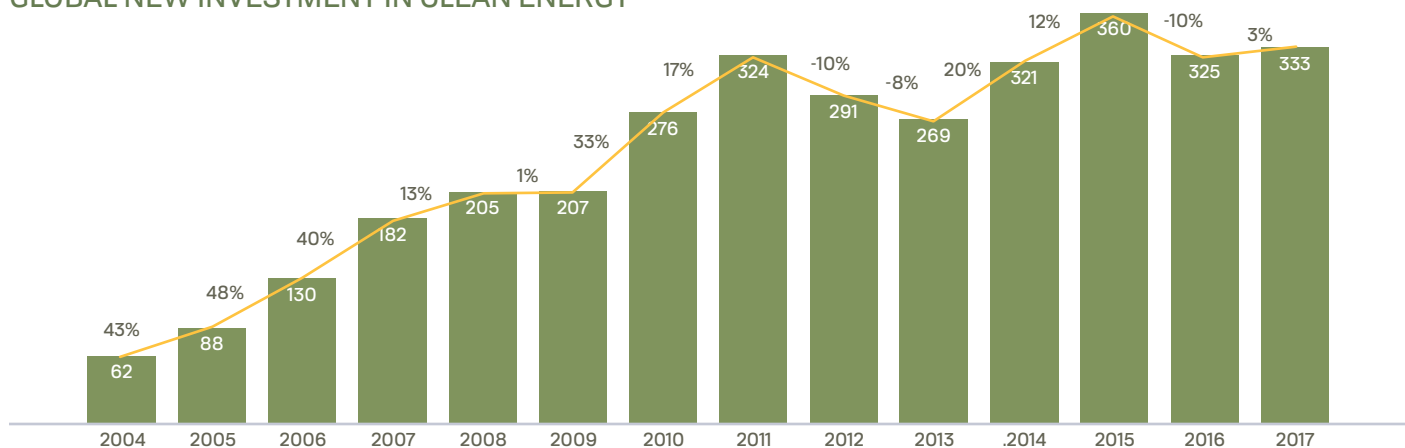
Bloomberg New Energy Finance, New Energy Outlook 2018⁶



Context and Methodology

A transformation in our nation's and the world's energy infrastructure is essential to addressing the profound threat of climate change. Massive infrastructure investments in clean energy, energy efficiency, and energy storage are required to meet agreed upon carbon reduction targets and achieve the goals of the Paris Agreement to limit global warming to well below two degrees Celsius (and to aim for no higher than 1.5 degrees of warming). Global clean energy investment was \$334 billion in 2017, up 3 percent from 2016, and the second highest annual figure ever. The investment growth over the prior year is notable considering the falling capital costs of solar energy⁷—meaning that every dollar invested goes further toward building clean energy capacity.

GLOBAL NEW INVESTMENT IN CLEAN ENERGY



Source: Bloomberg New Energy Finance, January 2018

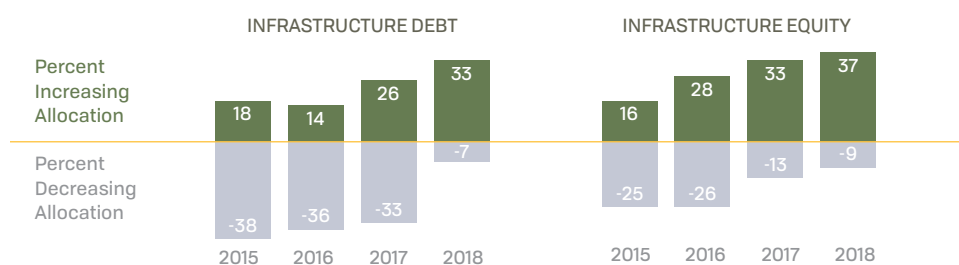
However, to achieve the goals of the Paris Agreement,⁸ accelerated growth in clean energy infrastructure—a newer asset class for many asset owners—is required. It is well documented that insurance companies, which control a considerable proportion of all assets held by institutional investors, are major investors in infrastructure assets. These types of assets are attractive to insurers for several reasons, including: the assets' long duration; their stable and secure cash flows; and, the diversification and attractive risk-adjusted returns the assets provide.

Private market infrastructure transactions—both debt and equity—are particularly attractive to insurance companies due to the specific attributes of private market transactions and infrastructure investments. Attributes of these types of private market transactions include inflation-linked and predictable current cash yields, as well as an opportunity for capital appreciation and competitive returns. In addition, infrastructure investments feature strong fundamentals related to future demand for investments in these services and products, i.e., population growth, aging infrastructure in need of modernizing and insufficient state and municipal budgets to publicly fund infrastructure costs.

To achieve the goals of the Paris Agreement, accelerated growth in clean energy infrastructure—a newer asset class for many asset owners—is required.

Concurrently, as insurers around the globe face ongoing investment challenges such as low interest rates, and growing challenges such as exposure to carbon asset risk, they are reevaluating their investment allocations. A recent BlackRock survey of insurers revealed that companies intend to increase their infrastructure investments in order to diversify their holdings. (Notably, European insurers are ahead of their U.S. counterparts when it comes to clean energy infrastructure investments.) The table below summarizes the BlackRock findings with respect to insurers' private market allocation intentions for infrastructure debt and equity from 2015-2018.⁹ Within private assets, insurers' demand for infrastructure debt and equity has been increasing, and overall private assets remain an area of great interest for insurers.

INSURERS' PRIVATE MARKET ALLOCATION INTENTIONS— INFRASTRUCTURE DEBT AND EQUITY*



Source: 2018 BlackRock Global Insurance Report, September 2018

In this context, during 2017 and early 2018, Ceres embarked on a three-phase study to assess the potential for increased investments by insurers in sustainable clean energy infrastructure and identify solutions to common challenges that might hinder such investments. The three phases of Ceres' study included:

Phase I: A survey of leading U.S. insurance company groups conducted during May and June of 2017. The purpose of the survey was to collect responses from insurer groups' investment professionals regarding their current and future strategies with respect to infrastructure asset investments and specifically clean energy infrastructure investments.

Phase II: Extensive interviews with insurer group investment experts and clean energy experts, including at two industry-focused events—a November 2017 Ceres Roundtable at Bloomberg LLP and an insurance session at the January 2018 *Investor Summit on Climate Risk at the United Nations headquarters*.

Phase III: Development of findings and recommendations related to clean energy infrastructure investment strategies that consist of action-and-solution-oriented guidance. The preliminary findings and recommendations were presented at the *2018 Ceres Conference* and are set forth in greater detail in this document.

The goals of the initiative and this guidance document are to inform, promote future dialogue among, and provide recommendations for consideration by key stakeholders, and to enable insurers to scale attractive investments in clean energy infrastructure projects.

Infrastructure Assets: Location-specific physical property and/or equipment that provides a public service. For example, infrastructure assets include projects and assets related to public or private utilities, such as, electric power and water; transportation, such as, roads and mass transit; communications networks; and other public service assets, such as, hospitals and municipal buildings.

Clean Energy Infrastructure Investments:

Investments in renewable energy technologies and facilities, including pre-investment, construction-phase and operational projects. Clean energy infrastructure investments include, in particular: wind and solar energy; energy efficient infrastructure, such as, higher-performance buildings; and, energy storage, such as, batteries and thermal storage.

Project Financing:

The issuance of debt and equity instruments by a special purpose entity on a nonrecourse basis, where the debt incurred to construct or acquire the project is repaid from the cash flow from operations of the project company.

Findings

The following are the key findings from Ceres' survey of insurance groups' investment professionals and follow-on dialogues regarding current and future strategies for infrastructure asset investments, with a particular focus on clean energy infrastructure investments. (Note that good faith efforts have been made throughout the following discussion to avoid directly linking any response with a specific insurance company group.)

- 70 percent of the surveyed U.S. insurer groups reported increasing their infrastructure investments in the past two years, and all of the surveyed U.S. insurer groups are at least maintaining their current allocation of infrastructure investments;
- 85 percent of the surveyed insurer groups contemplate clean energy investments for renewable energy, energy efficiency, and energy storage, based on averages across energy types;
- 52 percent of the surveyed insurer groups have explicit strategies and goals related to investing in clean energy;
- More than 50 percent of the surveyed insurer groups believe that clean energy investments mitigate fossil fuel investment risk.

Overall, insurance company investment professionals expressed a clear interest in, and commitment to, infrastructure investments, as evidenced by the following comments:¹⁰

“ *The long-term nature of our liability pools is suitable for long-term **infrastructure investing**; it is important to match the duration of our liabilities and assets. We are looking to participate in both debt and equity infrastructure opportunities.* — Large U.S. Property and Casualty Insurer

***Infrastructure investments** are a good fit for insurers and other long-term investors as they can match liabilities. Also, they are not highly correlated to other asset classes and optimize the risk/return profile of the overall investment portfolio.* — Global Reinsurer

*We developed an **infrastructure team** to focus on these attractive investment opportunities and grow our infrastructure assets under management in 2013. We primarily invest in debt, not equity, as long-term infrastructure debt matches our long-term liabilities.* — Large U.S. Life Insurer

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Challenges to Scaling Insurers' Clean Energy Infrastructure Investments

Insurance investment experts that Ceres surveyed and interviewed indicated that clean energy infrastructure debt and equity investments can often align with insurers' investment goals. Much like other types of infrastructure investments—consistent cash flows and a long duration—they are an ideal match for insurers' long-term liabilities. As an example, life insurers with long-term and easily forecasted liabilities often struggle to find assets with durations of over 40 years. Accordingly, these insurers have more latitude to invest in illiquid (or less liquid) infrastructure assets that are designed to provide for specific long-term durations. In addition, some casualty insurers with long-tail lines of business might consider clean energy infrastructure investments, but to a more limited extent than life insurers.

Despite the advantages of clean energy infrastructure investments, some insurers lack the experience and in-house expertise to invest. Other insurers indicated a lack of opportunities that fit their preferred investment criteria. The following describes Ceres' findings of the key challenges facing insurers that will need to be addressed to increase the scale of their investments in clean energy infrastructure.

Project Risks

Often, insurers are less familiar with clean energy infrastructure projects as compared to more traditional infrastructure, or other types of commercial projects (for example, manufacturing operations.) Insurers perceive the following potential risks related to clean energy infrastructure projects:

- **Construction/Completion Risk:** Some insurers questioned the ability of projects to be successfully completed, despite the fact that some renewable energy projects have fewer risks associated with construction or completion than other types of infrastructure. For instance, modular projects have more favorable historical results and less opportunity for error in the construction process.
- **Technology Risk:** Some insurers are concerned that clean energy technologies are not yet well-established enough to be considered reliable, or that the new technology might result in hazards which are not yet understood. In fact, utility-scale solar projects are considered stable, established technology with lower degradation rates than projected.
- **Resource (Especially Wind) and Location Risk:** Insurers indicated concern with dramatic changes in wind patterns, or a wind turbine "cannibalizing" the wind of another. Insurers also indicated difficulty assessing the risk profile of wind projects located in other jurisdictions or developing markets.

CASE EXAMPLE:

Nationwide Mutual Insurance and clean energy developer **Sol Systems** are investing \$100 million into a fund formed to acquire U.S. solar projects. The Helios Infrastructure Fund plans to buy more than 330 megawatts of solar over the next year, and the two companies expect to attract another \$400M in debt and tax-equity financing. Nationwide is among a growing number of institutional investors looking to directly own renewable-energy projects, including solar farms that have long-term utility contracts and are typically low-risk assets. The fund deepens a Nationwide-Sol Systems collaboration that began in 2012, and since then, has helped finance more than \$700 million of U.S. solar projects.

— Bloomberg LP, February 2018



→ **Project Economics—Size and Subsidies:** Some distributed generation projects are not optimally sized for institutional investors such as insurers. (In response, some firms are attempting to aggregate these projects for investors.) Other insurers expressed concern that projects reliant on subsidies may be less economically viable in the event that the subsidies are discontinued.

Competition for Attractive Clean Energy Infrastructure Projects

The insurer investment experts interviewed indicated that, generally, the minimum investment participation size that an insurer will consider for an individual finance transaction is \$20 million to \$50 million. (The minimum transaction size often varies based on the size of the assets held by the insurer, with some of the largest insurers participating in transactions worth hundreds of millions of dollars.) For larger transactions, a variety of other major investors, including pension and private equity funds, are interested in and will compete for these investment opportunities. Such competitors often are able to finance investments in clean energy infrastructure projects more quickly than insurers, giving them an advantage in securing investment positions. Insurers do have one major advantage—they typically can hold investments that have a longer duration until maturity than other competitors, whose portfolio structures do not require such long-dated assets.

Third Party Documentation and Rapid Deal Transactions

In a traditional private placement infrastructure transaction, insurers generally only have two weeks to assess and perform due diligence before the transaction closes. Because of this short timeframe for due diligence, insurers are highly reliant on the quality of previously prepared third-party assessments and due diligence performed by legal counsel, engineers, and other consultants who typically are engaged by the issuers (again, due to the short timeframe to perform the assessment). Further, although every clean energy infrastructure investment is unique and should be reviewed as such, there is a growing perception that the quality of third-party consultants who perform the necessary assessments and due diligence has declined, particularly due to the growth and maturation of the industry. Some insurers interviewed also were concerned that because third-party consultants' contracts can be limited in scope, the consultant is contractually unable to fully and adequately explore the transaction's details.

These dynamics introduce potential deterrents to insurers' clean energy investments. Insurers sometimes are at a competitive disadvantage in pursuing such clean energy infrastructure investments as compared

CASE EXAMPLE:

Prudential Global Investment Management (PGIM) is actively growing its own and client assets in renewable power generation. During 2017, the market value of that portfolio increased nearly 12.9 percent over 2016, with more than \$4.3 billion invested in a range of renewable power projects at year end 2017. As of December 31, 2017, PGIM's investments in renewable power generation included 37 percent in solar energy, and 36 percent are in wind energy. PGIM believes that managing the risks of climate change and strengthening environmental resilience is both a challenge and an opportunity for Prudential and its customers.

— PGIM company website



to more nimble institutions, especially those that have considerable in-house expertise capable of vetting project merits and risks. There is a corresponding need for some insurers to pursue measures to become more adroit in this space, thus leveling the playing field and closing the competitive gap with other investors.

Deal Risk/Return Profile

As an insurer evaluates a particular transaction, the risks involved must be weighed against an acceptable deal margin. For example, the risks involved in a transaction within a developing country may be acceptable, as long as the margins compensate the insurer for taking on non-U.S. location risk. Alternatively, for investments involving construction risk, a lower level of construction risk might mean the insurer is willing to accept a lower return on the investment. The insurer investment experts interviewed indicated that the elements of project financing for clean energy infrastructure investments appear to have become more commoditized as the sector has grown and matured. As a result, tighter deal margins have emerged, leaving little room for insurers to cover the costs of in-depth analysis, including detailed modeling and engineering reviews. Insurers and other investors alike will benefit as clean energy infrastructure matures as an “investable” asset class¹¹—bringing corresponding reductions in risk exposure and investment transaction costs.

Valuation techniques that are employed for clean energy infrastructure projects can also be problematic for insurers. As an example, some Canadian projects have provided higher returns, but have placed a higher value on the sponsor’s overall portfolio of projects in development. Unfortunately, some insurers believe these projected future project values were not realized since the portfolio of projects have not matured as expected. Other valuation issues have arisen due to the lack of accurate data on wind and solar project resources that allow investors to compare production probability distribution estimates, such as a project’s P50 values (i.e., projected average energy output) against proposed pricing.¹²

Insurers and other investors alike will benefit as the clean energy infrastructure matures as an “investable” asset class—bringing corresponding reductions in risk exposure and investment transaction costs.

Project Credit Ratings and Regulatory Treatment

► **Uncertainty with NAIC Credit Rating Designations**

For purposes of reporting insurers’ financial position, all state insurance regulators require that all bonds and preferred stock held by an insurer be reported in accordance with a NAIC credit rating designation system.

The NAIC credit rating designation uses a 1 through 6 designation scale, with a “1 designation” considered the highest rating, and a “6 designation” the lowest rating.

An investment’s rating is crucial to an insurer due to the effect on the insurer’s risk-based capital (RBC) calculation. An insurer’s RBC is defined as the minimum amount of capital appropriate for an insurer to support its overall business operations, after consideration of the insurer’s size and risk profile. As a general rule, a bond or preferred stock investment with a weak NAIC credit rating adversely affects an insurer’s RBC results, as compared to a bond or preferred stock investment with a strong NAIC credit rating (see table to the right). Accordingly, if an insurer invests more heavily in bonds or preferred stock with a weak NAIC credit rating, e.g., a “5” or a “6,” the insurer will be required to hold a higher level of capital due to the adverse RBC charges assigned to the investments with weaker NAIC credit ratings.

Generally, issuers follow a prescribed practice with the NAIC to obtain a credit rating for a bond or preferred stock investment that involves specific filings made with the Securities Valuation Office (SVO) of the NAIC. Additionally, the NAIC established an alternative mechanism in 2004 that allows for exemptions from the SVO filing process. Under the exemption process, the NAIC and state insurance regulators will accept ratings assigned to bonds and preferred stocks by a Nationally Recognized Statistical Rating Organization (NRSRO) that the NAIC accepts as a qualified Credit Rating Provider (CRP). For example, the chart on this page converts ratings by Standard & Poor’s to the NAIC SVO rating system for corporate counterparties and municipal ratings for public bonds. In effect, the CRP rating is converted to an equivalent NAIC SVO designation for statutory accounting and RBC reporting purposes.

In cases where a specific bond or preferred stock is not rated by a qualified CRP, the security must be filed with the SVO for review and a rating designation is provided. In the absence of an applicable NAIC ratings methodology, the riskiest credit rating may be assigned. The insurer investment experts interviewed as part of this study indicated that significant uncertainty still exists regarding the NAIC’s treatment of clean energy infrastructure investments for credit rating purposes. As a result, insurers are concerned about the effect of this uncertainty on RBC charges related to clean energy investments.

On May 23, 2017, the NAIC Valuation (E) Task Force adopted a proposal to add a “Power Generation Methodology” to the *NAIC Purposes and Procedures of the NAIC Investment Analysis Office* publication (P&P Manual). Per the new provision:

The potential success of a renewable energy project is evaluated by an independent engineer in a report which permits the projection of cash flows over the life of the debt and the probability of attaining the projected outcome. Analysis of power generation projects involves evaluation and synthesis of completion, operation and revenue risks, the debt structure and the financial metrics necessary for the project to succeed. A key financial metric is the project’s debt service (principal + interest) coverage ratio. Typical transactions involve a credit agreement fully secured by plant assets and the off-take agreement.¹⁴

STANDARD AND POOR’S CREDIT RATING EQUIVALENT TO SVO DESIGNATIONS¹³

Corporate Counterparty and Municipal Ratings — Public Bonds	NAIC
AAA, AA+, AA, AA-, A+, A, A-	1
BBB+, BBB, BBB-	2
BB+, BB, BB-	3
B+, B, B-	4
CCC+, CCC, CCC-	5
CC, C, D	6

The insurer investment experts interviewed as part of this study indicated that significant uncertainty still exists regarding the NAIC’s treatment of clean energy infrastructure investments for credit rating purposes.

This new power generation rating methodology seeks to consider all of the key aspects of this type of transaction in the credit rating process, which will in turn impact the investment RBC charge. In addition, by creating a more transparent credit rating process, issuers can more easily design issuances that can achieve a higher investment grade designation. The NAIC's new "Power Generation Methodology" approach advances the ability of insurers to receive more favorable credit ratings for renewable energy project investments.

Despite the availability of and improvements to the qualified CRP rating process, some insurers might still prefer to file a security with the SVO in advance of a purchase in order to receive a pre-designated credit rating, and more certainty regarding possible RBC charges. Conversely, some of the insurers' investment professional interviewed indicated that they will not accept deals that have not been rated by qualified CRP rating agencies because they believe that allowing the SVO to pre-designate a credit rating carries too much risk of an adverse rating decision. Further, insurers' investment staffs indicated that the SVO appeal process for an adverse credit rating decision lacks transparency.

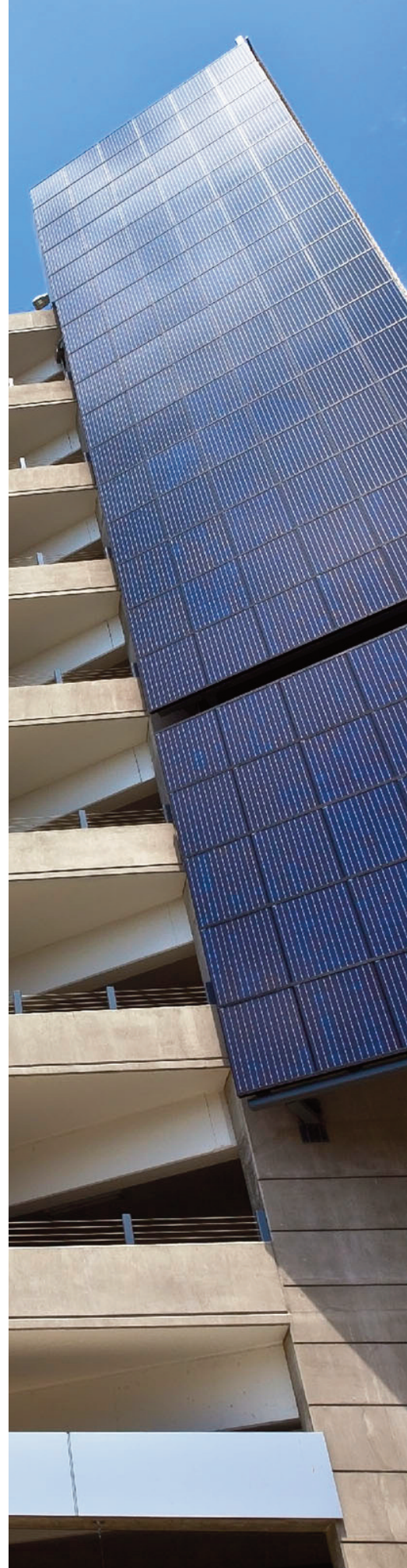
In sum, it is clear that issues remain concerning the absence of consistent and universal terminology within the industry to explain various issuances and underlying projects. As a result, a comprehensive regulatory framework currently does not yet exist for purposes of reviewing clean energy infrastructure investments, which results in a lack of transparency in the NAIC credit rating methodology, and ultimately fewer creditworthy clean energy investment transactions being successfully completed by insurers.

► **Misclassification of Clean Energy Infrastructure Investments**

The insurer investment experts that were interviewed observed that state insurance regulators have not adequately considered the beneficial attributes of clean energy infrastructure investments for purposes of statutory reporting and their overall impact on RBC calculations. Clean energy infrastructure debt issuances typically are classified as issuer obligations under "Industrial and Miscellaneous (Unaffiliated)" for statutory filing and credit rating purposes. By requiring this designation, insurance regulators may not allow a complete consideration of all of the beneficial characteristics of these investments.

For example, clean energy infrastructure debt may be connected with tangible assets or securitized by real estate that may offer recovery options in case of credit deterioration, e.g., a security interest in a project's marketable wind turbines. Additionally, some clean energy infrastructure investments may also provide more stable cash flow streams from creditworthy energy counterparties, or be controlled by a state utility, and/or have generally lower default rates, as compared to corporate debt.

The NAIC's new "Power Generation Methodology" approach advances the ability of insurers to receive more favorable credit ratings for renewable energy project investments.



► **Effects of Electric Utility Business Model Changes on Credit Ratings**

Alongside the growth in institutional investment, many utilities are moving towards a business model focused on clean energy electric power generation, and embracing virtual power networks, including behind-the-meter generation which in turn is expected to further drive demand for battery storage. With the traditional electric utility business model expected to transform rapidly, it is unclear how rating agencies and state insurance regulators will respond to these changes. As a result, insurers may need to anticipate credit rating actions and related NAIC designations that could affect transactions involving clean energy infrastructure investments.

It would be possible for insurers to mitigate risks associated with business model changes by obtaining CRP ratings or NAIC pre-designations on transactions in advance of closing, but this approach does not address risks to credit ratings after the investment is made. Additionally, since NAIC resources are already stretched thin, increases in the number of insurers requesting guidance on credit rating issues will make it difficult to obtain additional insight in a sufficiently time-efficient manner.

In terms of risk and return, investors need to carefully assess their long-term view on the wider energy and infrastructure market, considering climate-related risks and opportunities. For instance, according to a recent report, valuations of many electric utilities exposed to traditional fossil fuels have declined *due to the combined impacts of physical risks (climate, weather, water), regulatory and policy risks, reputational risks and exposure to transition risks from increasingly cost-competitive renewable energy and new technology shifts such as battery storage.*¹⁵

Reliance on External Experts

► **Private Market Outsourcing**

Some insurer investment experts interviewed emphasized that investing in clean energy infrastructure through private markets can be challenging, as an insurer may lack in-house expertise to evaluate these transactions, or the business volume to justify building it. Outsourcing is the solution for many—according to a recent BlackRock study, 98 percent of insurers outsource some or all of their private market asset investment decisions.¹⁶ (The same study also noted that within private markets, environmental, social and governance (ESG) is rapidly becoming a key consideration and that the level of competition for green investing amongst buyers is increasing.) Notably, industry associations such as the Private Placement Investors Association (PPIA), formed in 2007 as a business association of insurance companies and other institutional investors, promotes the development of best practices for direct investing in the private market and helps facilitate access to capital for issuers of private market debt instruments.¹⁷

► Investment Agents

Insurer investment experts interviewed also indicated that the expertise and experience of the investment agents responsible for facilitating a clean energy infrastructure financial transaction are critical. Understanding an agent's skills and capabilities, such as the size of the deal team or the number of deals completed, could help insurers gain confidence in the agents' abilities in representing individual transactions.

Although it appears that there are numerous deal agents active in this space, these agents appear to operate primarily in the banking sector. Since banks typically have relationships with the project originators/ issuers (i.e., the manufacturer, developer, or sponsor), it is relatively easy for banks to identify and market these transactions. Insurers believe they need to seek and obtain more information on potential transaction agents in order to better assess their experience and capabilities.

CASE EXAMPLE:

Canadian insurance company **ManuLife**, with \$850 billion in AUM, is a big investor in renewables. In early July, it announced \$2bn in capital commitments to the John Hancock Infrastructure Fund that provides third-party investors the opportunity to invest in direct private equity investments and co-investments in U.S. infrastructure. U.S. based renewables currently account for a 29 percent weighting in the fund, which has a 30 percent aspirational allocation to the class. ManuLife has been involved in wind, solar, biomass, hydro, and energy efficiency over the 17-year history of the program. According to John Anderson, ManuLife's head of corporate finance. "It's an important part of our portfolio now."

Institutional Allocator, July 2018

Recommendations

There is no single solution to addressing the various challenges facing insurers seeking to scale their clean energy infrastructure investments, but insurers and regulators are encouraged to review and implement the following recommendations that address some of the major issues identified.

Insurers and Industry Associations

► **Increase Capacity for Assessing Clean Energy Infrastructure Investments**

The beneficial attributes that clean energy infrastructure investments provide to insurers make it an attractive asset class in which to invest. Accordingly, insurers are encouraged to work with internal and external investment experts to set robust investment policies for appropriate allocations to the clean energy asset classes. In order to develop appropriate investment policy guidelines, insurers should consider creating a clean energy deal subgroup within their infrastructure investment teams. The expert capacity in the subgroup should cover a wide range of clean energy projects, including renewable energy, e.g., wind and solar energy sources, energy efficiency, and energy storage.

In addition, some insurers can gain additional advantages over other clean energy investors through cross-functional collaboration between their underwriting and investment business units. Proprietary information and risk assessment capabilities from the underwriting unit can provide essential input and support for investment decisions within the asset unit. Insurers and reinsurers can benefit from access to a cadre of trusted internal or external pools of experts in engineering, resource assessment (i.e., to assess meteorological data), geology, legal and clean energy finance, who can provide expertise and knowledge to the investment side of the business. Insurers can achieve the best possible risk assessment of clean energy deals by leveraging their underwriting and risk assessment areas of expertise.

► **Publish an Insurer Roadmap for Clean Energy Infrastructure Investments**

To address investment criteria challenges that reduce insurers' participation in clean energy infrastructure investments, a roadmap of insurers' optimum investment criteria based on different levels of risk appetite and size of insurer should be developed. The roadmap could also include a section that defines reasonable engineering standards for clean energy deals. The publication could be distributed to all known issuers and to all relevant agents, including insurers, commercial banks, investment banks, funds, institutional investors, and private placement groups.

Insurers should consider creating a clean energy deal subgroup within their infrastructure investment teams.

Insurers can achieve the best possible risk assessment of clean energy deals by leveraging their underwriting and risk assessment areas of expertise.

A roadmap of insurers' optimum investment criteria based on different levels of risk appetite and size of insurer should be developed.

The American Council of Life Insurers (ACLI), a similar insurer association, or some individual insurers might be interested in sponsoring such a publication. Finally, possible technical consultants could include the American Council on Renewable Energy, the American Wind Energy Association (AWEA), the Solar Energy Industry Association (SEIA), and other interested technical parties.

State Insurance Regulators and the NAIC

► Standardize NAIC Ratings Approach for Clean Energy Infrastructure Investment

State insurance regulators should encourage the NAIC to issue additional transparent guidance regarding the methods by which the NAIC assesses all types of clean energy infrastructure investments. The additional guidance should include a complete list of the various types of deal structures so that all types of potential structures can be considered in a more complete methodological framework.

State insurance regulators should also encourage the NAIC to ensure that insurers, as well as related transaction participants who request pre-designation determinations for unique transactions, clearly understand the primary factors that result in specific credit rating designations. The NAIC would then be better equipped to assign the most accurate credit rating designations for investments based on improved information from insurers and related transaction participants.

► Consider a Separate Investment Classification for Infrastructure Investments

State insurance regulators should encourage the NAIC to study the merits of establishing a separate investment classification category within the bond classification that recognizes all types of infrastructure investments, including a subcategory for clean energy infrastructure investments. This new category and subcategory would be distinct from other invested-asset categories within bonds such as the “Industrial and Miscellaneous (Unaffiliated)” category, which holds corporate unsecured debt, as required by the NAIC Annual Statement Instructions. (It is important to note that this would only address insurers’ clean energy bond investments, not insurers’ equity related to renewable energy investments.) Just as real estate investments are treated separately because they are connected with tangible assets, some infrastructure debt may be connected with physical assets or backed by other assets. These physical assets backing the debt can offer recovery options in the event of credit deterioration that generally is not available to corporate obligations, thereby partially mitigating underlying risks.



In addition, some infrastructure debt can provide more stable cash flow streams from energy contracts with creditworthy counterparties and has generally lower default rates, as compared to corporate debt when assessed in the aggregate. These subcategory characterizations could also aid state insurance regulators and interested parties in recognizing the unique attributes of clean energy investment so that these investments are not penalized through inaccurate credit rating designations and corresponding RBC charges. A possible example of a new NAIC investment category and subcategory is set forth below in bold.

PROPOSED NEW NAIC BOND INVESTMENT CATEGORY

- 1. Industrial and Miscellaneous (Unaffiliated)
 - a. Issuer Obligations
 - b. Residential Mortgage-Based Securities
 - c. Commercial Mortgage Backed Securities
 - d. Other Loan-Backed and Structured Securities
- 2. Infrastructure Investments**
 - a. Issuer Obligations**
 - b. Issuer Obligations (Clean Energy)**
 - c. Other Loan-Backed and Structured Securities**
 - d. Other Loan-Backed and Structured Securities (Clean Energy)**
- 3. Hybrid Securities
 - a. Issuer Obligations
 - b. Residential Mortgage-Based Securities
 - c. Commercial Mortgage Backed Securities
 - d. Other Loan-Backed and Structured Securities

With the market for clean energy investing poised for accelerating growth, insurance companies need to pick up the pace to take advantage of the massive energy transition underway.

Today, investments in clean energy are widely viewed by many institutional investors as a prudent portfolio component that combines low risk, long tenors and attractive returns. With the market for clean energy investing poised for accelerating growth, insurance companies need to pick up the pace to take advantage of the massive energy transition underway. Industry regulators also play a critical role, and can take key further steps described above in order to promote insurers' ability to invest prudently, thereby promoting the resilience of insurers' portfolios and the industry's overall competitiveness and future growth.

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- 8 Although the U.S. federal administration has announced an intention to withdraw from the Paris Agreement, every country in the world has joined the Agreement, and any actual U.S. withdrawal from the Paris Agreement would not be effectuated until late 2020 at the earliest. In the meantime, the U.S. remains a party to the Agreement, and a diverse array of over 3,500 U.S. subnational actors—businesses, investors, states, cities, academic and faith institutions, etc.—all have committed to ongoing and / or increased climate action. See e.g., <https://www.wearestillin.com/>.
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