National Association of Insurance Commissioners & The Center for Insurance Policy and Research

MEMORANDUM

TO: Stewart Guerin, Chair, Valuation of Securities (E) Task Force
Members of the Valuation of Securities (E) Task Force

FROM: Bob Carcano, Senior Counsel, NAIC Investment Analysis Office

CC: Charles Therriault, Director, NAIC Securities Valuation Office
Eric Kolchinsky, Director, NAIC Structured Securities Group

DATE: May 23, 2017

RE: Joint ACLI – IAO Proposal to add a Power Generation Methodology to the *Purposes and Procedures of the NAIC Investment Analysis Office* (P&P Manual)

1. Introduction - Power generation projects involve the construction, ownership and operation of facilities to produce electricity for sale to a third party. Electricity may be generated using different fuel sources; including coal, natural gas, nuclear and renewable energy sources (i.e., wind, solar, geothermal, hydro, and biomass) and different technologies. SVO has long had an analytical capability in this area. However, a growing interest in renewable energy projects by major insurers could not be reasonably accommodated without articulating an SVO methodology and related guidance that would give insurers a sense of the SVO's approach to such transactions and a framework against which to evaluate the regulatory treatment their transactions would likely incur. The SVO partnered with an ACLI Team to collaborate on the methodology presented in Attachment One below. The SVO requests that this memorandum be received and exposed for a 30 day comment period.

2. Overview – Power generation projects are designed by a sponsor; built by a contractor who agrees to deliver the project for a fixed price and at a date certain; an off-taker who agrees to purchase all of the electricity generated for a specified price and an operator to run the plant. The potential success of a renewable energy project is evaluated in 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. Completion risk focuses on the terms of the construction contracts, the quality of the contractor and the construction timescale. Operation risk evaluates potential cost increases, technological reliability, cost predictability and structural protections. Revenue risk depends on the amount of electricity generated, which is a factor of energy inputs, prices received for outputs and the stability and predictability of the offtake agreement. Debt structure is concerned with the payment terms (equally amortizing, back ended amortization, targeted amortization), liquidity support (provided by a debt service reserve), covenant support (generally weak financial covenants). The key financial metric is a project's debt service (principal + interest) coverage ratio. Typical transactions involve a credit agreement fully secured by plant assets and the off-take agreement.

EXECUTIVE OFFICE • 444 North Capitol Street NW, Suite 700 • Washington, DC 20001-1509 p | 202 471 3990 f | 816 460 7493
CENTRAL OFFICE • 1100 Walnut Street, Suite 1500 • Kansas City, MO 64106-2197 p | 816 842 3600 f | 816 783 8175
CAPITAL MARKETS & INVESTMENT ANALYSIS OFFICE • One New York Plaza, Suite 4210 • New York, NY 10004 p | 212 398 9000 f | 212 382 4207
www.naic.org

Attachment One
Proposed SVO Methodology for Power Generation Projects

Part Three – Credit Assessment

Section 7 – Power Generation Projects

(a) Definitions

Cash Flow Available for Debt Service (CFADS) is defined as cash flow from operations in any given period (cash revenue minus cash operating expenses) less major maintenance capital expenditures. Major maintenance expenditures are those the Project needs to make to operate the plant in good order for the life of the transaction, including expenditures related to a Forced Outage. Excluded from major maintenance capital expenditures are any extraordinary or discretionary capital expenditures that are not required to keep the plant in good working order.

Cash Sweep refers to principal amortization that occurs at specified intervals based on excess cash (or a portion thereof) after completing certain steps in the Project's Depositary Agreement Waterfall. Cash Sweep mechanisms are often utilized in order to reduce leverage with excess cash available, and can be utilized to reduce refinancing risk in certain Financing Structures. Failure to make a Cash Sweep payment does not typically trigger a payment default, but might result in a prohibition on distributions to the parent or sponsor.

Depositary Agreement refers to the contractual agreement between the Project company, the lenders, and a third-party trustee, which governs the collection and application of cash flow proceeds from the Project. The Depositary Agreement includes provisions for reserve accounts that support specific Project liquidity needs, certain future Project liabilities, and/or backstop debt service.

DSCR stands for debt service coverage ratio and is defined as Cash Flow Available for Debt Service (CFADS), divided by the scheduled interest and principal payments as measured during any given period (measured on a twelve month rolling basis) and seeks to show the cash flow cushion available to meet the Project's ongoing debt amortization obligations given the intrinsic cash flow generation ability of the Project. The scheduled interest and principal payments are defined in the project's bond indenture or loan agreement during a specified period.

EPC means Engineering, Procurement and Construction and refers to a contract under which a contractor agrees to design and construct a project on a specified timeline and in accordance with specified performance requirements.

Financing Structure means the specific form of the financing plan describing the type(s) of debt used to capitalize the Project entity, the position of the debt relative to the asset and other participants in the capital structure, terms of repayment, contractual obligations, and protections incorporated in the financing (such as guarantees, security, pledges, reserve accounts, restrictive covenants, etc).
Fully Amortizing means that the Project's debt is fully repaid during the term of such debt through cash flow from operations.

Fully Contracted means that the Project (as Seller) has entered into an agreement with a utility or other purchaser of electricity (as Buyer) to sell all of the electricity it will produce in an Off-Take Arrangement or PPA pursuant to which the Buyer agrees to buy the capacity, electricity, ancillary services, tax credits, and or environmental attributes/credits generated by the Project.

Forced Outage means the net capability of the Project's main electricity generating units that are unavailable for load for emergency reasons.

Generation means the process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in kilowatt hours.

Heat content means the amount of heat energy available to be released by the transformation or use of a specified physical unit of an energy form (e.g., a ton of coal, a barrel of oil, a kilowatthour of electricity, a cubic foot of natural gas, or a pound of steam). The amount of heat energy is commonly expressed in British thermal units (Btu). Note: Heat content of

combustible energy forms can be expressed in terms of either gross heat content (higher or upper heating value) or net heat content (lower heating value), depending upon whether or not the available heat energy includes or excludes the energy used to vaporize water (contained in the original energy form or created during the combustion process). The Energy Information Administration typically uses gross heat content values.

Hedging contracts - Contracts where a counterparty agrees to purchase a specified quantity of future electric generation (or ancillary services) at fixed prices independent of the real-time spot market prices. These contracts are typically financially settled with the power plant selling its generation into the spot market and paying/receiving the difference between the hedged price and the actual spot market price to/from the counterparty. In the electric power market, these hedges are typically structured as a heat rate call option or revenue put. Interest rate hedges provide for the conversion of floating interest rates to fixed rates. Derivatives may be used for this purpose.

Implied Heat Rate - A calculation of the day-ahead electric price divided by the day-ahead natural gas price. Implied heat rate is also known as the 'break-even natural gas market heat rate,' because only a natural gas generator with an operating heat rate (measure of unit efficiency) below the implied heat rate value can make money by burning natural gas to generate power. Natural gas plants with a higher operating heat rate cannot make money at the prevailing electricity and natural gas prices.

Merchant Pricing means the price of electricity agreed to between a buyer and seller set in an open market on the basis of supply and demand.

Off Taker means the purchaser of the Project company's electricity under an Off -Take Arrangement or a PPA.

Off-Take Arrangement – means an agreement under which the Project company enters into an agreement with the Off-Taker to provide a specified quantity of electric generation, available capacity, ancillary services and or environmental attributes and the Off-Taker is typically obligated to pay for that product whether or not it accepts the product; provided the Project company has the current capacity to produce it.

O&M means operation and maintenance expenses and refers to the costs related to the normal operating, maintenance and administrative activities of the Project.

Partially Amortizing – A debt amortization profile that includes a balloon payment at the end of the debt term. This structure typically relies on refinancing or an equity contribution to repay the balloon amount.

Partially Contracted – A Project that has entered into a PPA or Off-Take Arrangement for less than the plant's full generating capacity.

Power Generation Project (Project) refers to a power plant that generates and sells electricity within a special purpose entity, using a specified Technology and Fuel Source.

Power Purchaser means the buyer of electric generation, capacity, ancillary services, and/or environmental attributes from the Project company.

Power Purchase Agreement (PPA) means an agreement in which the Power Purchaser agrees to purchase all or up to a specified quantity of electric generation, capacity, ancillary services, and/or environmental attributes produced by the Project company.

Project Financing means the issuance of debt by a special purpose entity on a non-recourse basis – whereby the debt incurred to construct or acquire the Project is repaid from the cash flow from operations of the Project company, typically pursuant to an Off Take Arrangement or in a PPA, rather than relying on the equity Sponsor.

Renewable Energy Power Generation Project means a Project Generation Project whose Technology is based on the capture of energy from on-going natural processes, such as sunshine, wind, wave power, flowing water, biological processes such as anaerobic digestion and geothermal heat flow.

Resource Risk refers to the inherent variability and uncertainty in projected solar irradiation and wind speeds using data gathered from the project site that is then correlated to a longer historical meteorological data set to produce a long-term resource projection for the Project.
Scheduled Outage refers to planned downtime during which a plant is unavailable to operate. Scheduled Outages are typically planned in advance and communicated with the RTO/ISO and/or the Off Taker.

Scheduled Principal payments are the principal amortization amounts required to be paid, pursuant to a schedule included either in the Note Purchase Agreement, Credit Agreement, or the form of Note. Scheduled Principal is distinguished from Targeted Principal payments and Cash Sweep principal payments by the fact that failure to make a Scheduled Principal payment would result in a payment default.

Solar Power Generation Project is a Renewable Energy Power Generation Project based on a technology that converts heat energy into electricity using mechanical processes (solar thermal) for example, by concentrating solar radiation to create steam or that converts sun light directly into electricity based on semiconductor technology (photovoltaic or PV solar).

Targeted Principal payments are principal amortization amounts that are paid if and to the extent that cash is available at that point of the Waterfall according to the priority of payments in the Depositary Agreement. Failure to make a Targeted Principal payment does not result in a payment default. Satisfaction of Targeted Principal payments may be a condition to permitting distributions to the parent or sponsor. Financing Structures with debt tranches that utilize Targeted Principal payments are often intended to address the inherent period to period variability in renewable resources (such as solar or wind) by allowing the Project to amortize principal during periods of strong resource without penalizing or straining Project cash flow during periods of weaker resource.

Waterfall describes the order and priority of payments that may (or must) be made according to the Depositary Agreement or other Project document.

Wind Power Generation Project is a Renewable Energy Power Generation Project that utilizes one or more wind turbine generators (WTGs) that harness the energy generated by wind and convert it to electricity.

Technology and Fuel Sources refers to the technology on which a power plant will be based and the mechanical process or fuel to be used to generate electricity – which may involve any one of the following: gas-fired, coal, hydroelectric, nuclear, bio-mass, renewable or other.

(b) Economic Dynamic of Power Generation Projects

The methodology discussed in in Section 7 and more particularly in sub-section (c) below, applies to non-recourse power generation projects. A typical non-recourse power generation project relies on one or a small number of assets to generate all of the project's revenue and operating margin over the life of the asset(s). In some instances, the project's collateral may consist of only a single asset and an assignment of rights under an offtake agreement. In order to properly assess the credit quality of these Project Financings, a number of factors must be considered, with the strengths and relative weaknesses weighed against one another in an organized and holistic manner.

(c) General Methodology for Power Generation Project Finance Transactions

Assessment of a project incorporates an evaluation of the analytical constructs described in this sub-section (c). The conclusions drawn from each analytical constructs are then organized by reference to the factors shown in the Credit Factor Chart in sub-section (d) below applied in conjunction with the Principles Guiding the Use of the Credit Factor Chart to reflect the unique structural elements in each transaction.

1) Cash Flows – Analysis of the Project's cash flow during the debt term (and beyond, as applicable) to assess its composition and predictability.

2) Competitive Position of the Project Asset and its PPA/Off-take Arrangement– An assessment of the Project asset within the context of the marketplace and regulatory environment and an analysis of the PPA or Off-take Arrangement relative to the power market in its region and regulatory considerations.

3) Operating and Technical Risks –Assessment of the Project's technology and operating risks.

4) Financial Metrics – Analysis of the Project's key financial metrics The primary metric for a Project Financing Structure that is fully contracted and fully amortizing is DSCR. Financial metrics are evaluated against peers with similar characteristics, debt service obligations and leverage. The NPV of projected cash flow compared to total debt is another key metric used in this analysis.
Additional considerations that could strengthen or weaken the above core analysis include:

- Liquidity/Reserve Accounts
- Structure
- Refinancing Risk
- Structural Subordination
- Construction Exposure

(d) Tools and Concepts Used in the Application of the General Methodology for Power Generation Project

(i) Credit Factor Chart - The following Credit Factor Chart is intended as a tool to organize the primary analytical considerations derived from the application of the methodology discussed in sub-section (c) above to the most important factors in determining the credit quality of a transaction. Given the highly specialized nature of this asset class, the baseline assumption is that there will be unique structural elements in each transaction that reflect the specific facts and circumstances of that credit. Accordingly, judgment is required in the application of the Credit Factor Chart to specific transactions. For each Credit Factor there is a recommended range for weighting to reflect that risk can vary significantly among projects.

Credit Factor	Subcategory	Weight Range	Project Risk Score Descriptions		
			Weak	Average	Strong
Construction	**Construction**	0%-40%	Contractor with little relevant experience or weak reputation; floating contract; aggressive budget and schedule; difficult construction process and/or complexity	Contractor with some relevant experience; fixed rate contract; reasonable budget and schedule; reasonable construction complexity	Contractor with significant experience and strong financial position; fixed rate contract with financial incentives and penalties; reasonable budget and schedule; simple construction
Operations & Technology	**Operator**	5%-10%	Operator with little relevant experience; irreplaceable operator; compensation is not performance based	Operator with some relevant experience; operator can be replaced; compensation is based on performance	Operator with significant experience; operator can be replaced; compensation is based on results with LDs for underperformance
	Technology	10%-20%	Unproven technology with limited performance history	Proven technology with some performance history, or newer technology with appropriate equipment warranties backstopping performance guarantees	Proven technology with significant performance history
	Operations & Maintenance (O&M)	10%-15%	O&M is managed by the project and funded from cash flow from operations	O&M is managed by the project or third party and expenses are smoothed/backstopped by reserve accounts and/or equipment warranties. Adequate sensitivity modeling for higher than projected O&M expenses.	O&M is managed by a reputable third party through a long-term service agreement with fixed pricing
	Resource/Fuel Assessment	5%-20%	Fuel is purchased on the open market; resource assessment lacks on-site historical reference data	Firm fuel transportation and supply; resource assessment is acceptable and based on some on-site historical data, correlated to a reference station with a longer data set	Fuel is purchased through a long-term agreement with fixed pricing and firm transportation or is subject to a tolling agreement with the power purchaser; resource assessment is high-quality and based on significant historical data or meaningful historical operating data is present in lieu of a new resource assessment

Credit Factor	Subcategory	Weight Range	Project Risk Score Descriptions		
Counterparty Credit Profile & Competitive Position	**Creditworthiness of Counterparty**	10 - 25%	Weak counterparties; aggressive contractual terms, high probability of default or termination	Creditworthy counterparties; reasonable contractual terms, and achievable performance standards	Counterparties whose creditworthiness is rated above the project's; favorable contractual terms
	Competitive Position	5%-15%	All of the Project's generation will be sold into merchant market	Partial merchant exposure with some hedging or some PPA offtake to mitigate price fluctuations	Generation is sold under a long term power purchase agreement or hedge arrangement
Transaction Structure	**Transaction Structure**	10% - 20%	Acceptable legal structure/separation provisions; no distribution tests; refinancing risk; cross-default provisions with other debt; weak depositary terms/cash control/liquidity	Strong bankruptcy remoteness and legal separation provisions; limited refinancing risk; historical look-back distribution tests; appropriate depositary arrangement and average reserve account/liquidity protection	Strong bankruptcy remoteness and legal separation provisions; strong look-back and look-forward distribution tests; no refinancing risk; strong depositary terms, excellent liquidity protection with appropriate reserve accounts

ii. Principles Guiding the Use of the Credit Factor Chart

Credit Factors:

Construction: Projects are often financed for a long-term period, with the private placement debt coming in before, during, or after construction. Accordingly, if the debt is funding before or during construction, an analysis of the construction exposure and its potential impact on the financing must be completed. The assessment of construction risk is intended to facilitate the assignment of a long-term rating for the project from the first date of the financing, assuming steady state operations, that is unaffected by the presence of a typical construction scenario with a properly structured Engineering, Procurement and Construction (EPC) arrangement. Accordingly, the analysis of construction risk exposure is meant to capture outsized risk exposures that have a high probability of causing a meaningful delay in achievement of commercial operations, materially increasing costs, or delaying/impairing the project's ability to service debt.

This analysis should address the likelihood of the project's construction being completed on time, on budget (or within contingency), and within the expected operating performance parameters. In addition to the likelihood of a smooth construction process, the contractual structure of the EPC arrangement should be assessed to determine the adequacy of remedies and mechanisms in the EPC Agreement to address potential delays, disputes, cost overruns, and operational deficiencies. A fixed-price EPC Contract with a reputable construction company that includes mechanisms (such as bonuses and liquidated damages) to align the parties' incentives to complete the Project on time, within operational specifications, and within budget would be expected to score as a Strong in the risk factor scoring for this category. Unqualified contractors, unrealistic construction budgets, or unachievable timelines (if not addressed by structural enhancements to the EPC Contract) could merit a Weak score. Escrow accounts and letters of credit may be used to help ensure performance under the EPC Contract where a guarantee from the construction company's parent is deemed insufficient/lacking creditworthiness to backstop the contractor's obligations. An independent engineer would typically assess the quality of the contract, the pricing, adequacy of contingency, and the ability of the contractor to complete the scope of work in the timeline expected.

Special considerations unique to renewable projects: Wind and solar projects are generally considered to have lower risk construction processes than conventional power plants due to the modular nature of the equipment involved and the shorter timeline required to complete construction and commissioning activities. Both solar and wind projects are typically commissioned in stages, allowing the project to begin earning revenue prior to Commercial Operation Date (COD), which can help to offset exposure to construction delays if they arise in the final stages of commissioning. The level of complexity in the construction activities for a photovoltaic (PV) solar project is typically considered to be low due to minimal moving parts and the modular nature of the plant assembly.

Operational & Technology: Assessment of a project's Operational & Technology profile is intended to determine the level of exposure to these challenges that could impact both revenue and expenses. These risks are assessed through four primary sub-categories: operator, technology, O&M expense profile, and resource/fuel assessment. Typical investment grade projects will utilize commercially proven technology, a sophisticated operator, a carefully planned operating and capital expense projection, and an appropriate fuel arrangement that avoids financial penalties

for fuel supply/transportation constraints and exposure to fuel costs that aren't passed through to the Off-taker. Comprehensive property damage and liability insurance is expected to be in place, with business interruption coverage that compensates that project for force majeure disruptions in operations.

Special considerations unique to renewable projects: For renewable projects, a professional resource assessment by an experienced third party engineering firm will typically be completed prior to construction of a Project, with appropriate sensitivities and adjustments for the particular geography, climate, and details of the project site and equipment being used. Wind speeds or solar insolation data gathered on site for a meaningful period of time in advance of the start of construction is preferable. The debt sizing should account for downside resource scenarios as well as the mean projected resource. Operational projects that have meaningful resource and generation data from historical operations may rely on actual historical data points in base and stress cases if the actual operating history is determined to be a better predictor for future performance than the original resource assessment.

Counterparty Exposure and Competitive Position:

Counterparty Exposure - In instances where the project's cash flow stream is dependent upon payment or other performance by a counterparty, the credit quality of that entity should be assessed. The primary counterparty of concern in a typical power project financing is the Off-taker or hedge counterparty for the sale of the project's generated power. The credit rating of the Off-taker/hedge counterparty typically serves as the ceiling for the project's credit quality due to reliance on the counterparty for cash flow to service the debt financing. The power purchase agreement or hedge does not need to cover all of a power project's generation in order for the project to qualify for an investment grade quality conclusion or a strong assessment in this category, but the debt sizing should be appropriate for the level of contracted cash flows under the Offtake arrangement, with limited or no reliance on the merchant cash flow to service debt. Please refer to Part Three, Section 1 (a) (ii) of this Manual for Audited Financial Statement standards applicable to an offtaker not rated by an NAIC CRP.

Letters of credit, guarantees, and other security posted in support of a lower credit quality counterparty's obligations should be taken into account, as the security could be sufficient to ensure performance throughout the contract. If the project must provide a pari passu lien to the hedge provider to secure the project's obligations under the hedge, the potential detriment to the senior lenders caused by sharing this security interest should be evaluated relative to the debt amount and value of the project's long term cash flows under scenarios where the hedge is out of the money. Capped liens in such situations are typically preferred.

Offtake agreements should be assessed to identify risks to the project's cash flow due to the project failing to meet specified performance standards, uncompensated curtailment, and any clauses that could allow the Off-taker to reduce payments or terminate the agreement due to future regulatory/market changes. In some instances, the market alternatives to a counterparty, and the ease with which such counterparty could be replaced, should be evaluated.

Competitive Position - Fully contracted projects with power purchase agreements or hedge arrangements under market terms should generally be considered to have a strong competitive position. In situations where the contractual price of the power being sold under the offtake agreement materially exceeds prevailing spot and forward market prices in the region, the Off-taker's motivation for entering into the agreement (and ability to pass the cost of such agreement on to its ratepayers/customers) should be considered. State renewable portfolio standards, federal environmental legislation, the current political climate, federal/state energy policy and regulations, and regional supply/demand fundamentals may support the viability/defensibility of above market offtake agreements. If the viability of an offtake arrangement is in question, it might be appropriate to consider the project's ability to service debt if it were to sell power (and any applicable ancillary services) under current and forward market rates.

Projects that are fully exposed to merchant pricing are likely to be considered to have a weak competitive position unless a particular heat rate or cost advantage that results in superior cash flow relative to other market participants can be proven.

4) Structure: A typical power project financing is structured as a non-recourse, standalone entity that is neither reliant on its parent, nor impacted by its parent's credit profile. While the ultimate structure of the transaction can

take different forms (including leases), several components are needed in order for the project to be considered separate from its parent(s):

- The project entity is a limited or special-purpose entity (solely engaged in the generation, distribution, voltage regulation, and/or transmission of electricity).
- The debt investors have a security interest in the assets, accounts, and equity of the project. The debt investors have an assignment of key contracts/agreements.
- The project is contractually entitled to the cash flow stream that services the debt.

Additionally, a typical project structure includes the following:

- The Project's funds are segregated from the parent/sponsor, and a third-party trustee administers the movement of cash flow, in accordance with a Waterfall.
- Distributions to the parent/sponsor are allowed only when certain criteria and DSCRs are met.
- Standard affirmative and negative covenants requiring regular operational and financial reporting, restricting the sale of assets, prohibiting/restricting the incurrence of additional liens/indebtedness, limiting modifications to and cancellation of material project agreements, restricting acquisitions or changes in line of business, and other standard project finance covenants.

The assessment of strong, average, or weak for the Project's structure is dependent upon the strength of the above terms, and how they have been crafted to address the Project's specific attributes/risk profile.

Financial structures that should be evaluated further to determine whether their structure merits a designation of average or weak include:

- Refinancing Risk –Projects with partial or a back-ended amortization during the debt term should present downside scenarios to show the most likely level of debt outstanding at maturity that will be refinanced, and the likelihood that a refinancing would be accepted by the marketplace based on the cash flow post-maturity, contract structure post-maturity, and the expected asset value at the time of refinancing. The life of the asset (compared to its expected useful life), debt/kW of capacity, and current mergers & acquisitions (M&A) values for similar assets on a transaction price per kW basis should be used to evaluate the viability of a refinancing. A Project with a fully amortizing structure (with otherwise strong structural elements) will be considered stronger than a partially amortizing structure.
- Structural Subordination – In Projects where the debt is at a holding company and there is a significant degree of project or subsidiary level debt (or tax equity) that needs to be serviced prior to cash being available to service the debt of the rated issuer.

The ability of the Project to withstand revenue disruptions due to unscheduled Forced Outages and other events is assessed. The assessment factors include the existence and amounts of debt service reserves, major maintenance reserves, operating reserves, property damage and business interruption insurance, and committed working capital facilities. A debt service reserve of six-month is standard. The need for a major maintenance reserve may be mitigated by a long-term service agreement.

Overall Financial Risk Profile

After evaluating the Project's credit factors, the average debt service coverage ratio (DSCR) profile necessary to support a quality conclusion will be determined. DSCR is not the only metric used to determine the appropriate quality conclusion—in structures with multiple tranches, Cash Sweeps, Targeted Amortization, and refinancing risk, the net present value (NPV) of the remaining projected cash flow divided by the total debt amount ("NPV Ratio") is an appropriate measure of the Project's ability to service debt over the term of the financing (or post-financing, when evaluating refinancing risk). The calculation of the NPV Ratio typically uses the coupon (or weighted average interest rate) as the discount rate for the calculation. In evaluating a refinancing scenario post-maturity of the current financing, market rates (accounting for the current forward interest rate environment) can be used to approximate the appropriate coupon/discount rate.

Projects exhibiting an overall credit factor assessment of "weak" are not expected to fall within the highest or high quality categories due to their inherent weaknesses. Projects with unique situations that give rise to higher variability or uncertainty in cash flow, may require higher debt service coverage ratios to achieve the same quality conclusion as a comparable project without such volatility. The following table provides guidance for what ranges of DSCRs or NPV Ratios would generally indicate higher versus lower quality conclusions given different overall risk assessments from the Credit Factor Chart.

Average Debt Service Coverage or NPV of Cash Flow to Total Debt					
Overall Credit Factor Chart Risk Assessment	**Quality Conclusion**				
	Investment Grade		**Speculative Grade**		
	Highest	**High**	**Medium**	**Low**	**Lowest**
Weak	N/A	N/A	1.30-2.00x	1.20-1.50x	1.10-1.35x
Average	1.75-3.25x	1.30-2.00x	1.20-1.50x	1.10-1.35x	1.00-1.25x
Strong	1.50-3.00x	1.20-1.75x	1.10-1.35x	1.00-1.25x	1.00-1.15x

(e) Additional Methodological Considerations for Renewable Energy Projects

1. Additional Considerations Applicable to Solar Power Generation Projects

Assessment of Solar Power Generation Projects is conducted on the basis of the general methodology described Section 7 (b) of this Part, above but is subject to the additional considerations that follow.

Regulatory Incentives – The electrical output of Solar Power Generation utilizing photovoltaic technology can be expensive relative to the cost of the output of thermal combined cycle gas turbines or coal-fired plants depending on the regional market that the project is operating in and time of day that the power is being delivered. This often means the viability of individual projects depends on regulatory incentive, subsidy or support. When such support exists, the form of the support; its predictability; the general level of political support for renewable energy and the fit with the energy policy and framework are evaluated.

Structural Risk – If the form of incentive, subsidy or support imposes time lines for project completion as a condition, the ability to meet the timelines and the potential loss of the incentive, subsidy or support on the viability of the Project should be considered.

Technology Risk - Technology risk is defined by reference to the potential for serial defects that can cause panel yields to be below specification or make yields degrade more quickly than originally assumed. The presence of warranties and insurance products supporting the Project's panel technology, as well as decreasing future panel replacement costs should be considered as potential risk mitigants.

Resource Risk - The volume of electricity produced by a PV solar power plant depends on the period to period variability of solar irradiation. The expected volume of irradiation over a given time is contained in forecasts provided by reputable and experienced consultants prior to the commencement of commercial operations, expressed as a probability distribution function. The project's ongoing ability to service debt is assessed by using both the P50 and the P90 forecast to calculate base case and downside financial ratio scenarios. Operational projects that have meaningful insolation and generation data from historical operations may rely on actual historical data points in base and stress cases if the actual operating history is determined to be a better predictor for future performance than the original resource assessment.

2. Additional Considerations Applicable to Wind Power Generation Projects

Assessment of Wind Power Generation Projects is conducted on the basis of the general methodology described Section 7 (b) of this Part, above but is subject to the additional considerations that follow.

Regulatory Incentives – The cost of electrical output from Wind Power Generation is typically competitive with the cost of the output of thermal combined cycle gas turbines or coal-fired plants depending on the regional market that

the project is operating in and time of day that the power is being delivered. Some projects, however, rely on a regulatory incentive, subsidy or support. When such support exists, the form of the support; its predictability; the general level of political support for renewable energy and the fit with the energy policy and framework are evaluated.

Structural Risk – If the form of incentive, subsidy or support imposes time lines for project completion as a condition, the ability to meet the timelines and the potential loss of the incentive, subsidy or support on the viability of the Project should be considered.

Technology Risk - Technology risk is defined by reference to the potential for serial defects that can cause lower than projected availability and/or higher than projected operating expenses. The presence of warranties and insurance products supporting the Project's turbine technology, carefully considered O&M projections, as well as the level of deployment of the turbine model/similar technology, and availability of spare parts (OEM and/or aftermarket) are factors that can balance this risk.

Resource Risk - The volume of electricity produced by a wind power plant is impacted by the period to period variability of the wind resource. The wind resource forecast is provided by reputable and experienced consultants prior to the commencement of commercial operations, expressed as in a probability distribution function. The project's ongoing ability to service debt is typically assessed by using both the P75 and the P90 forecast to calculate base case and downside financial ratio scenarios. (Different base or downside scenarios may be used in certain instances if the circumstances of a project or the presence of a unique risk exposure merits a different projection scenario.) Projects that have meaningful wind speed and generation data from historical operations may rely on actual historical data points in base and stress cases if the actual operating history is determined to be a better predictor for future performance than the original resource assessment.

ii. Principles Guiding the Use of the Credit Factor Chart - Special considerations unique to renewable projects:

Credit Factors:

Construction: Wind and solar projects are considered to have lower risk construction processes than conventional power plants due to the modular nature of the equipment involved and the shorter timeline required to complete construction and commissioning activities. Both solar and wind projects are typically commissioned in stages, allowing the project to begin earning revenue prior to Commercial Operation Date (COD), which can help to offset exposure to construction delays if they arise in the final stages of commissioning. The level of complexity in the construction activities for a photovoltaic (PV) solar project is typically considered to be low due to minimal moving parts and the modular nature of the plant assembly.

Operational & Technology: Assessment - For renewable projects, a professional resource assessment by an experienced third party engineering firm will typically be completed prior to construction of a Project, with appropriate sensitivities and adjustments for the particular geography, climate, and details of the project site and equipment being used. Wind speeds or solar insolation data gathered on site for a meaningful period of time in advance of the start of construction is preferable. The debt sizing should account for downside resource scenarios as well as the mean projected resource. Projects that have meaningful resource and operational data from historical operations may rely on actual historical data points in projection scenarios if the actual operating history is determined to be a better predictor for future performance than the original resource assessment.

Special Considerations for Renewable Projects: Projects should be evaluated using both the financing case (typically P75 for wind or P50 for solar, unless pre-financing actual results differ materially and necessitate the usage of a different probability of exceedance as the baseline projection) and a stress case (typically P90 unless unique circumstances of a Project's risk profile or its historical performance merit the use of a different scenario) to determine which designation is most appropriate.

Part Two – Filing with the SVO

Section 10 - Reporting Conventions and Required Documents

(c) Reporting Conventions and Required Documents

(i) Corporate Issues

(H) Power Generation Projects

- Independent Engineer Report - A typical report format identifies the contractor who will construct the Project, experience, and the contract type: i.e. fixed cost turnkey. Describes the equipment to be used to construct the Project, provides an assessment of its expected life and identifies and explains applicable warranties. Discusses anticipated completion date and contingencies or ramifications if the completion date is not met. Projects financed after construction is completed will not need to include such construction discussions in the Independent Engineer Report. The report should identify uses of construction funds and any construction budget contingency available. Provides data and a study of Resource Risk including where the geography and time period over which the information was obtained. Often provides an analysis of the Off Take Arrangement. Provides an analysis of projected cash flows based on Resource Risk and any applicable degradation or curtailment projections.

- Offtake Arrangement or Power Purchase Agreement – Identifies the Buyer and the terms under which the Project's dedicated capacity, generated electricity, ancillary services, and/or environmental attributes will be sold; identifies pricing (including escalation clauses); permitted degradation; allowances for scheduled and unscheduled outages; financial penalties imposed under the contract for generation below required levels and identifies required reserves and the amount of such reserves.

- Please refer to Part Three, Section 1 (a) (ii) of this Manual for Audited Financial Statement standards applicable to an offtaker not rated by an NAIC CRP.

- Information Memorandum – This can be in the form of a Private Placement Memorandum, a Confidential Information Memorandum or a Detailed Internal Report. The Information Memorandum should include: a Project description (site), parties and background information on the equipment supplier(s) and contractor, the transaction and the economic rationale of the Project; a description of the sources and uses of funds; cash flow projections covering the term of the debt, including base case and stress case scenarios; a discussion of available reserve accounts such as debt service, operating and maintenance and decommissioning, as applicable; a description of the legal agreements including security and covenants and a description of the Off Take Arrangement.

- Legal Agreements – The package of legal agreements identifies the terms of the security and collateral package; and provides an opinion whether investors have a perfected security interest and lien on the collateral; indicates the maturity date of the debt incurred in the Project Financing and includes sufficiently detailed Scheduled and Targeted Amortization schedules as well as the requirement for any Cash Sweep (as applicable); identifies the reserves that have been established and confirms that such reserves are pledged as part of the collateral package to bondholders; provides for a cash flow Waterfall to ensure items of cash flow such as revenue, expenses, tax, debt service and distributions occur in the specified priority; and includes the affirmative and negative covenants (such as restricted payments tests and limitations on the incurrence of additional indebtedness)

applicable to the Project; identifies events of default, cross-default to the issuer's other debt , if applicable, and remedies upon the occurrence of an event of default.

- **Depositary Agreement** – The contractual agreement between the Project company, the lenders, and a third-party trustee, which governs the collection and application of cash flow proceeds from the Project as further defined in Part Three, Section 7 (a) above.