STRUCTURED FINANCE RATING CRITERIA

GLOBAL PROJECT FINANCE RATING CRITERIA

This is an update to the methodology previously published in November 2019.

There are no material changes and as such no rating impact.

November 2020

I. INTRODUCTION

ARC Ratings S.A.'s ("ARC") Global Project Finance Rating Criteria (the "Criteria") apply to the long-term financing of assets with a single-purpose. The Criteria may apply to both non-recourse and limited recourse project financings. Typically, project finance assets include electricity or power generation and/or distribution, as well as infrastructure and transportation projects.

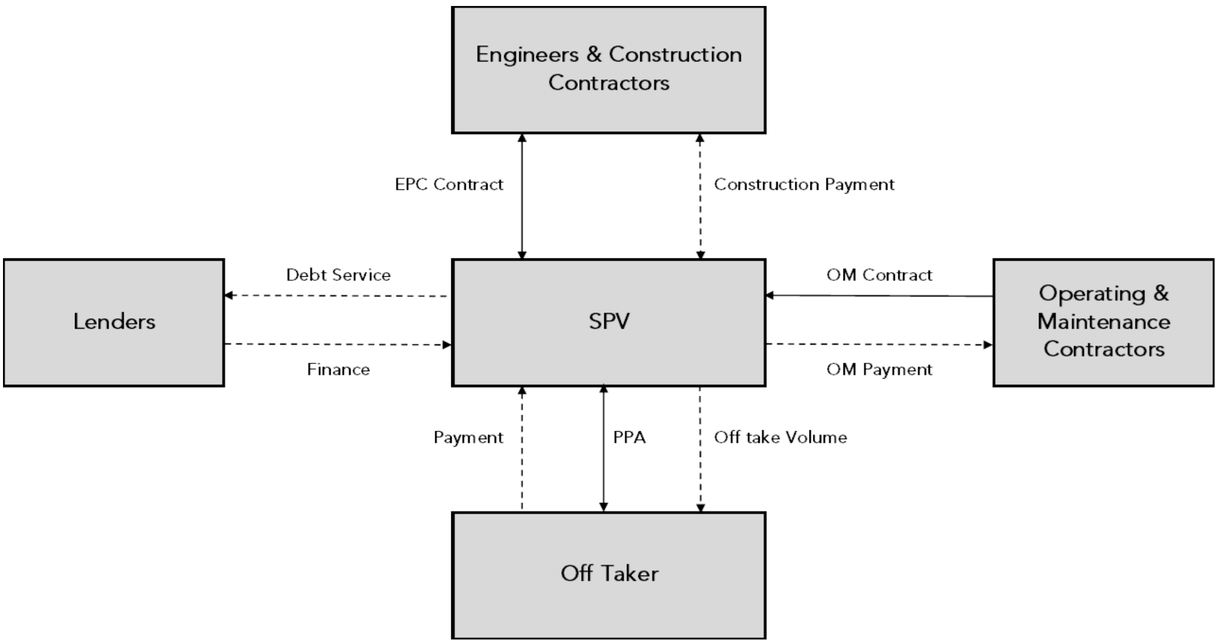
This report provides a framework for ARC's analytical approach to all project finance transactions globally. Each project type, as well as each jurisdiction, will have its own specific characteristics which will be reflected in the individual transaction report and any deviation from these Criteria will be disclosed in such report.

II. RELATED RESEARCH

This report should be read in conjunction with ARC's Global Structured Finance Rating Methodology, updated and published in September 2020, available at www.arcratings.com.

OVERVIEW OF PROJECT FINANCE

Project finance is long-term financing of assets for a single purpose, typically structured so it is non-recourse to the project owner or any other party, i.e., it is solely reliant on cash flows from the project itself, although some transactions do benefit from the implied support of originators or other parties. Project Finance structures rely on various contracts being in place to manage risk during construction and operating periods. The diagram below depicts a Simplified Project Finance structure.



Assets are typically held in a Special Purpose Vehicle (SPV) with the revenue-generating output of the project typically contracted with an external party via a contract between the SPV and the purchaser (or 'off-taker') which specifies volumes and prices or formulae to establish them. An example would be a Power Purchase Agreement (PPA), in the context of electricity generation from a renewable energy source where the contract would be for a specific term with renewal options at set intervals.

If there is a construction period, the Engineering, Procurement and Construction contract (EPC) sets out the terms of construction, normally at a fixed price. The Operating and Maintenance (O&M) contract sets out the terms of the operating and maintenance contractors during the operating period. The contracts mentioned typically transfer risk from the SPV to the transaction counterparties. ARC expects to receive copies of all contracts as well as all other structural and legal documents. The contracts and legal documents should cover risks associated with the transaction, such as construction risk, operating risk, price and inflation risk, and catastrophic risk. The analysis will also address the credit risk of the transaction counterparties.

ANALYTICAL APPROACH

There are many aspects that make up ARC's analysis of a Project Finance transaction. These will be discussed in further detail throughout the report. ARC will apply a 'scorecard' approach (see Appendix A) which may be weighted towards certain factors with scorecard rating categories notched up or down for certain structural deficiencies/enhancements or mitigated/unmitigated risks. Whilst the scorecard acts as a guideline for indicative rating categories there are also a number of sub-factors that incorporate both a quantitative and qualitative analysis. As such the scorecard is only a guide and the final rating may be further notched to reflect these characteristics.

Project finance transactions will typically have one or two distinct phases which carry different risks, namely the construction phase and the operational phase. The construction period is often considered to be the riskier part of a project, and as such any project covering both phases can see a lower rating assigned to the construction period with propensity for upgrade once construction is complete.

The scorecard assumes a fully amortising transaction during the operating period. Where the transaction is non-amortising or partially amortising additional factors will be taken into consideration in the analysis, as detailed later in this report.

CONSTRUCTION PERIOD

To analyse the construction period and its inherent risks, ARC will assess the following elements, among others, to determine the appropriate rating:

- Complexity of Construction;
- Assessment of Quality of EPC Contractor and EPC contractual arrangements;

- Construction Period Funding Adequacy; and
- Guarantees/quality of counterparties

Complexity of Construction

Construction risk varies for different project types. The more complex the technology, and the less tested it has been on previous projects, the higher the construction risk. Certain geographical locations or different types of terrain may also have an impact on construction risk, as may the design and scale of a project. There is a clear hierarchy of complexity where, using the power sector as an example, a nuclear plant is considerably more complex than a solar farm, an offshore wind farm more complex than an onshore one. The higher the complexity, the higher the risk and, by implication, without mitigation of such risk, most likely the lower the rating achievable.

Construction is not covered by the scorecard analysis but is used as a base to determine notching if a construction period is applicable.

Assessment of Quality of EPC Contractor and EPC Contractual Arrangements

In evaluating construction risk ARC will evaluate the contractors' experience, reputation and track record. ARC will also ensure the construction contractor has sufficient experience with respect to the size and type of project to be constructed. Where a contractor is not rated, ARC will conduct an internal credit assessment process to assess the credit quality of the construction contractor.

In respect of EPC contractual arrangements, ARC will evaluate the arrangements to ascertain if it is a fully wrapped fixed price, turnkey type arrangement, and date certain. The contractual arrangements should clearly transfer the risk of construction to the third party contractor. To the extent the SPV is left with any construction risk, ARC will evaluate the severity of risk retained, and assess any other mitigants present. Project sponsors might also assume construction risk in the form of cost overrun undertakings or completion guarantees.

ARC will review findings from an Independent Engineer (IE) for projects that are technically complex. For such projects an IE might be engaged to comment on achievability of the construction schedule, budget and technology risk as well as the ability of the project to meet any future offtake performance thresholds with regard to availability, output etc.

Construction Period Liquidity/Funding Adequacy

ARC will assess if the project has sufficient ability to pay debt service until construction is completed and payment commences under the off-take agreements. Whilst construction risk is a material risk to a project, so too are delay risk and non-operation in accordance with project specifications. For instance, an offtake agreement might impose penalties for a delay in attaining commercial operation. All of these risks are assessed by ARC in its analysis. ARC will look for liquidity to be in place to cover the assumed delay, the precise number of weeks/months assumed will again be dictated by the project's complexity.

Liquidity may be provided by a number of different means, for example by liquidated damages to be paid by the EPC contractor, cash funded reserves, or letters of credit (LC's) amongst others.

If the EPC contractor is unrated or has a low rating, other sources of external liquidity may be required in addition to liquidated damages.

Guarantees

If any guarantees or insurance policies are in place that negate some elements of construction risk, ARC will assess their adequacy and conditionality and factor these into its analysis accordingly.

OPERATING PERIOD

Relative to construction costs, O&M costs are typically low, and the ability to replace an operator is generally higher than for a construction contractor. Nonetheless, there are a number of factors which ARC will take into account when assessing O&M risk.

Operating and Maintenance Risks and Costs

In order for project cash flows to be sustained, operational availability and effective maintenance is necessary. O&M costs may be affected by a poorly performing O&M contractor which might result in project revenue targets not being met, so ARC will assess the experience and track record of such a contractor. ARC will look to the O&M to see if it contains a clause for operating damages should a contractor underperform and/or an option to replace the contractor. A project sponsor will typically have equity in a project and the greater amount of equity should mean a higher commitment to ensuring a successful project. ARC will also review the sponsor's equity investment as well as its track record and credit worthiness. Although referred to as 'equity', the sponsor's investment might be provided in the form of subordinated debt or preference shares but in any event the SPV should be able to defer payments on these instruments if cash is lacking. A weak sponsor is often deemed to be a credit negative within the analysis.

O&M costs are expected to be a highly predictable amount of the cost structure and be largely stable over the life of the project.

Revenue/Off-take Agreements

The certainty and sustainability of cash flows throughout the life of the transaction is key to the rating. Therefore, ARC will assess the revenue/off-take agreements in place. ARC will evaluate the credit strength of the off-taker as well as their ability to honour the revenue contract. In cases where there are multiple off-takers, this can add diversity to the revenue stream and can be credit-positive. Where there is a single off-taker, the analysis will focus on its ability to honour the revenue contract - if the off-taker is a highly rated single entity, e.g. a government or state-owned entity and the project is integral to the off-taker's infrastructure, more credit may be given. There may also be instances where a project may be rated higher than the rating of the off-taker as many other factors, not solely the off-taker's rating, are taken into consideration in the analysis.

If revenues and operating costs are mismatched this can result in increased risk for a transaction, whilst fixed pricing and a longer-term contract can help to mitigate risk.

Merchant risk projects, i.e. projects that sell output at market price, are deemed to be higher risk and as such will not be covered under ARC's scorecard analysis. Such projects will be assessed on a case-by-case basis and will typically require independent market studies to be carried out, which ARC expects to be made available to it.

Fixed-price contracts typically lower risk in a project, however this can create further risk if costs can fluctuate. For example, contracts for power supply may include a variable element as well as a fixed price component that may be payable by the off-taker based on availability of power and not on actual dispatch.

The contract should be assessed for contract exclusions (or 'outs') as these can increase risk if a contract imposes increasingly high availability on a project for example.

Contracts based on 'availability' – typical in a 'pipeline' project where payments are made on the volume of gas or electricity than can be delivered but regardless of whether it is actually delivered - can add further risk to a transaction if levels of availability are set close to the attainable range, making them liable to be breached and thus result in penalty payments to the off-taker or a reduction in the revenue received. Availability should be set within reasonable limits of the project and will be assessed within the analysis. In particular, ARC will assess if the technology is tested and has a proven and strong track record and ARC will look to evidence of warranty period and duration of long-term service arrangements to assist in providing required availability.

Competitiveness

ARC will assess the competitiveness of the project relative to other projects/plants in the market. For example: for a power plant project ,this assessment looks at the cost of production of power and also the cost competitiveness of the project in current market conditions if the contract were to be terminated and the power sold into the market. Therefore, if the revenue contract (in this context a power purchase agreement (PPA) pays substantially above market price this increases risk. Regulatory issues are also considered in the analysis as a change in law or the regulatory environment could have a substantial impact on existing revenue contracts for power or other forms of production.

In addition to the scorecard analysis ARC will consider the following risk mitigants as inputs to the analysis:

Debt Structure

The Debt Service Coverage Ratio (DSCR) is the single most important financial measure for a Project Finance transaction and is based on the cash flow available for debt service (CFADS), defined in broad terms, for any period, as: the revenue generated by the asset less its operating expenses, maintenance, taxes and any contribution to future life cycle costs such as a maintenance reserve (where known replacement costs for certain components are spread more evenly over the project life).

DSCR can be stable, allowing immediate repayments of principal once a project is operational or back ended, typical where a project builds up its capacity to a sustainable level, in either case driven by the stability and certainty of cash flow. Back-ended DSCR profiles allow higher DSCRs in the earlier periods whilst others are more even, resulting in lower and more stable average DSCRs but are better from a protection perspective in that amortisation of principal starts immediately and is expected to continue throughout the project life.

The level of DSCR expected for each rating level is dictated by the extent of amortisation of principal over the life of the debt, as discussed further below. An acceptable level of amortisation is, in turn, dictated by the nature of the project, in particular its expected life, the profile of revenues expected (or contracted) over its life and the extent to which revenues are expected to continue beyond the term of the initial debt. For example, a project with a very long expected life (50 years or longer) with an initial level of debt with a considerably shorter maturity (say, 25 Years), as well as an expected flat stream of revenues over its entire life might have a non-amortising initial debt structure with all cash in excess of interest paid being paid to equity holders. Such a project might still achieve a reasonably high rating so long as the excess cash available is, say 6 times the interest payable, simply because at the end of the debt maturity the sale or refinancing of the project is more certain. A guide to the he DSCR bands for amortising and non-amortising transactions and their relevant corresponding rating categories can be found in Appendix B.

The DSCR is sensitive to availability assumptions in power projects and the level of optimisation embedded in traffic forecasts etc, in the case of toll road projects. Subordinated debt and any other fixed charges are usually covered in the DSCR calculation despite their ranking. DSCR is the most appropriate measure for fully amortising structures. For partially or non-amortising structures ARC will review other key financial metrics but acceptable DSCR levels for these transactions for different rating levels are dependent on the project and structure type.

A non-amortising or partially amortising project can be acceptable if there is a strong likelihood that the project will have a terminal value – i.e. a sale of refinance value, based on its potential for continuing to generate positive cash flows beyond the debt maturity. This might be the case if, again in the case of a power project, a PPA extends beyond the debt maturity (or even if its renewable and highly likely to be renewed).

For fixed payment transactions ARC will assess if any inflation protection is in place and stress the cash flows with an inflation assumption. It is assumed that an investment-grade transaction can withstand a stressed annual inflation (such stress to be determined by reference to the specific jurisdiction) annually throughout its life and still achieve a DSCR of 1.0x or higher. If the DSCR potentially could fall below 1.0x ARC would expect interest deferability language to be present within the transaction documentation.

For power generation projects, ARC expects a DSCR of between 1.2-1.6x to achieve the lower end of a 'A' rating category. It is atypical for Project Finance transactions to achieve higher than an 'A' category rating. However where all other factors are of exceptional quality, and a high DSCR exists, this may be achievable. DSCR triggers may be implemented for transactions that trap the flow of cash and prevent equity distributions if they are breached. ARC will view any such DSCR triggers as favourable to a transaction to stop the deterioration of DSCRs.

The term of the debt is also key. The debt should ideally mature prior to the off-take agreement (e.g. PPA) contract term end date. If the term of the debt exceeds the term of the contract, then market value risk and potentially interest rate risk is assumed at maturity. Projects that are scheduled to be fully amortising will typically have no predictable material terminal value (although in reality they might realise greater than zero).

Refinancing risk is another structural risk. If a transaction is refinanced this can incur a different interest rate which in turn may have an impact on the required DSCR. If the DSCR was at the higher end of the scale for the given rating category the impact may be limited but this will not always be the case.

There may be other risks present within a project, each of which is assessed on a case by case basis by ARC but may include, amongst others: siting and permitting risks (environmental and resettlement issues may introduce obstacles), sponsor risk, and regulatory and political risks which may not only have an impact on revenue but may also have an impact on costs.

Reserves

For Project Finance transactions a reserve for a minimum period of debt service is standard. ARC will assess the amount of the debt service reserve dependent upon the underlying project type. Projects that exhibit volatility in production may be expected to include higher debt service reserve requirements. Projects that have less than a six-months debt service reserve may achieve lower ratings than those with a minimum of six months.

In addition to a debt service reserve ARC will also look to a maintenance reserve if maintenance costs are considered substantial for a project, if they are not highly predictable or have a tendency to increase over time or at specific intervals. Where there is a need for regular maintenance such as for wind power generation projects a debt service reserve is necessary as standard.

ARC will review any other reserves or forms of liquidity available to a transaction within its analysis.

Such reserves should be cash funded or provided by means of a letter of credit by an appropriately rated counterparty.

Insurance

ARC will assess the insurance coverage provided. The insurance policy should cover amongst other items, replacement cost of a project, force majeure and potential business interruption. The project lenders should be an insured party and have the option to elect to be paid out from any insurance proceeds or for the project to be replaced or rebuilt if necessary. Any changes to the insurance policy should require consent of the lenders. ARC expects insurance to be provided by a recognised insurance company with an appropriate rating, commensurate with the rating assigned to the project. Annual insurance certificates should be supplied by the SPV detailing continued coverage and compliance with terms. Insurance renewal risk is deemed to be low as insurance premiums make up a small proportion of the project's costs.

Counterparties

Any financial counterparty to the transaction such as account bank, LC provider, swap counterparty should be rated. Typically for Project Finance the financial counterparties will be rated higher than the debt rating. ARC has minimum counterparty rating guidelines published within its Global Structured Finance Rating Methodology published in September 2020 available at www.arcratings.com.

On-Site Review

ARC will typically meet with management of a project to discuss their business strategies, policies, competitive performance and projections as well as discuss advances and changes in technologies to assess whether the project will be well managed, as well as review an established managerial track record.

ARC also expects to receive audited financial statements for the project prepared by a recognised audit firm, and to receive adequate information on a regular basis in order to monitor project performance. Delays in receiving audited financial statements may be considered an indication of a potential breakdown in internal controls of a project.

LEGAL CONSIDERATIONS

Project Finance SPV's are often not bankruptcy remote from the parent. Whereas in a securitisation bankruptcy remoteness of the SPV is commonplace this is not the case for many Project Finance transactions. Whilst Project Finance SPV's may engage in a broader range of activities than securitisation SPV's, these should still be reasonably limited. ARC expects to see separateness covenants in respect of the SPV as well as for the SPV to have an independent director in place.

From time to time commercial disputes may arise in respect of the SPV and contractors or the revenue counterparty. ARC expects a robust dispute resolution clause to be in place that provides a transparent and timely guideline that limits legal recourse and enables continued operation or construction until such dispute has been resolved.

ARC will analyse the security structure presented. Project lenders should have a first-ranking, perfected, senior security interest or other form of security such as a mortgage over the assets of the SPV. Upon a default of the SPV the lenders should be able to control its assets and take over any contractual rights and / or obligations of the SPV including control of contracted cash flows.

ARC expects to receive full transaction legal documentation as well as legal opinions addressing, amongst others, the creation and legal existence of the SPV, validity and enforceability of security and the power and authority for the SPV to enter into certain projects.

ARC will typically use external counsel to review legal opinions.

NON-AMORTISING OR PARTIALLY AMORTISING TRANSACTIONS

Project Finance transactions are typically fully amortising and the scorecard in Appendix A addresses such structures. Where a structure is non-amortising or only partially amortising, the DSCR will not adequately fully address the implicit financing risk, particularly where any excess cash that does arise is paid to the equity holders. In such transactions, ARC will seek assurance that, at the end of the debt term, the project can either be refinanced or on-sold at price which would allow full repayment of any outstanding financing. For example, ARC will seek evidence of similar projects which have been on-sold or have had their lives extended in such a way to allow for the full repayment of the expected outstanding debt, e.g. by continuation of the revenue flows at the same or a higher level.

Transactions with highly predictable cash flows, and with fixed amortisation profiles, will likely be regarded as more likely to result in adequate amortisation by the end of a project's life. For projects with no planned amortization, a higher DSCR threshold is necessary because the DS of the DSCR calculation is only interest.

DSCR ranges for a rating category will be significantly higher when compared with amortizing transactions - i.e. between 1.2x to 1.4x for 'BB or <' to up to 6.5x or more for 'A' rating category. The bands of DSCR and their relevant corresponding rating category can be found in Appendix B. In addition to reviewing cash flow coverage ARC will also assess the Total Debt to Total Capitalisation from a project company's balance sheet. To achieve an 'A' rating ARC will look for a 20% to 40% Total Debt to Total Capitalisation ratio, 41% to 60% for a 'BBB' rating while over 60% would be reflective of a BB or lower rating. The ratios and their corresponding rating category can be found in Appendix B.

A qualitative assessment may be made in respect of future cash flows regarding refinancing risk.

PERFORMANCE MONITORING

Ongoing monitoring of performance of transactions and the underlying assets is key to the rating process and maintaining current ratings. ARC expects performance information to be provided on a monthly or at least quarterly basis. ARC also expects to be notified of any changes to the transaction that may impact the current rating and its analysis.

Upon each reporting period ARC will review the performance information provided to ensure it is reflective of the information the analysis was based on at the outset. In addition, surveillance rating panels are held by ARC annually at a minimum or as events warrant. Negative or improved performance of the underlying project may trigger a potential rating action. For public transactions ARC will publish a performance report on an annual basis at a minimum or as events warrant.

RATING MODIFIERS

An Indicative Rating - evidenced by the suffix (ind) – is a rating assigned by ARC to an issuer or an instrument (most commonly structured or project finance debt issues) when the assignment of a final rating is dependent upon the fulfilment of specific contingencies. Any material deviation in the fulfilment of these contingencies from the assumptions underlying the Indicative Rating can have a material impact on the final rating accorded, which accordingly may be fundamentally different to the initial Indicative Rating. Moreover, ARC reserves the right not to issue a final rating. Potential investors are advised to bear this in mind when considering any indicative rating.

Whilst Project Finance transactions may be analysed by ARC's structured finance team, Project Finance ratings do not carry the (sf) modifier.

DISCLAIMER

Note that ARC is not a legal, tax or financial adviser and will only provide a credit opinion of the project. For example, a rating does not cover a potential change in the applicable laws nor can it be regarded as an audit. Moreover, ARC is not a party to the transaction documents, nor does it provide legal, tax or structuring advice.

APPENDIX A: SCORECARD

The following scorecard should act as a guideline for the rating analysis. Additional factors may be taken into consideration in the analysis and both a quantitative and qualitative assessment may be made in addition to the scorecard below. These assumptions will be discussed during the rating panel process.

Operating Period Assumptions	A High Quality	BBB Average	BB or < Weak
Operating & Maintenance costs, proven technology and track record	• High replaceability of operators • Technology proven • On-going O&M costs expected to be modest • Operator strong track record • O&M contract contains significant operating damages • Sponsor track record of on-going financial support for project	• Average replaceability • Technology proven, operating issues have occurred / average operating history • O&M essentially to maintain project efficiently • Recognised operator • Long-term O&M contract with limited or no operating damages • Sponsor has good track record and financial support and oversight	• Low replaceability • Technology considered proven, with untested elements or limited history • Need for active O&M • Operator experience limited to this technology type • Contractor may not exceed project life • No operating damages • Sponsor with little or no track record
Revenue / PPA/Offtake Agreements	• Very highly predictable / stable cashflows • 1 or more highly rated offtakers • No fuel / resource supply risk • Extremely limited contract outs	• Highly predictable / stable cashflows from minimum 1 credit worthy counterparty for full term of project • Low fuel / resource supply risk • Limited contract outs • Attainable availability demands	• <50% cashflows contracted • Cashflows considered less stable • High risk of fuel / resource supply risk • Contract constrained by availability tests and other outs
Competitiveness of Contracts	• Strong competitiveness • Strong economic rationale for projects and predictable profitability • Terms of contract competitive • Little impact on revenue following termination of the contract	• Reasonably cost competitive • Some degree of barrier to entry • Terms of contact at or near market price • Modest revenue erosion on termination of the contract	• Weak or no competitive advantage • Terms of contract 20%-50% above market price • Failure to replace contract may result in a lack of revenue and potential default within 2 years
Competitiveness of Assets	• Competitive assets located in 1 or more countries / regions • High obstacles to entry	• Consistently competitive in 1 or more countries / regions • Regulatory / legislative protection for limited time • Mid-range obstacles to entry	• Legislative or regulatory obstacles • Low obstacles to entry • New entrants a severe threat to business

APPENDIX B: FINANCIAL RATIOS GUIDANCE

The DSCR ratios considered in determining ARC's Project Finance ratings for amortising transactions, map to the rating bands as follows:

Financial Ratios Guidance for Amortising Transactions			
	A	BBB	BB or <
DSCR Ratio	>1.6x	1.6x to 1.2x	<1.3x

For non-amortizing or partially amortizing transactions a combination of DSCR ratios and Total Debt to Total Capitalization ratios is used, with the following indicative bands:

Financial Ratios Guidance for Non-Amortising or Partially Amortizing Transactions			
	A	BBB	BB or <
DSCR Ratio	6.5x or >	6.5x to 4.0x	1.2x to 4.0x
Total Debt to Total Capitalisation	20% - 40%	41% - 60%	60% or >

DISCLAIMERS

ARC Ratings, S.A. is registered as a Credit Rating Agency with the European Securities and Markets Authority (ESMA), within the scope of the Regulation (EC) Nº 1060/2009 of the European Parliament and of the Council, of 16 September, and recognised as External Credit Assessment Institution (ECAI).

ARC Ratings (UK) Limited is registered as a Credit Rating Agency with the United Kingdom Financial Conduct Authority, within the scope of the Statutory Instrument Nº 266/2019, of 13 February, and recognised as ECAI.

Credit Ratings assigned by ARC Ratings are independent and forward-looking opinions on the capacity and willingness of an entity or the capacity of a transaction to make all required interest and principal payments on a given obligation in a timely manner interest and principal. The meaning of each rating category is explained in www.arcratings.com. ARC's credit ratings are based on ARC's published rating criteria.

Ratings do not constitute a recommendation or offer or solicitation to buy or sell any investments that may be mentioned, and are only one of the factors that investors may wish to consider. The use of any rating is entirely at the user's own risk.

In the rating process, ARC Ratings adopts procedures and methodologies aimed at ensuring transparency, credibility and independence, and also that rating classifications are not influenced by conflicts of interest.

CONTACT DETAILS

ARC Ratings (UK) Limited

30 Churchill Place
Canary Wharf
London E14 5RE
UNITED KINGDOM
+44 203 927 8600
arcratings_uk@arcratings.com

ARC Ratings, S.A.

Rua de São José
35 – 1º B
1150-321 Lisbon
PORTUGAL
+351 21 304 11 10
arcratings_eu@arcratings.com

www.arcratings.com

Ashley Thomas
Co-Head of Structured Finance (UK)
ashley.thomas@arcratings.com

Stefan Augustin
Co-Head of Structured Finance (EU)
stefan.augustin@arcratings.com